131

PHOTOFACT* FOLDER SET

*TRADE MARK

NO. 131

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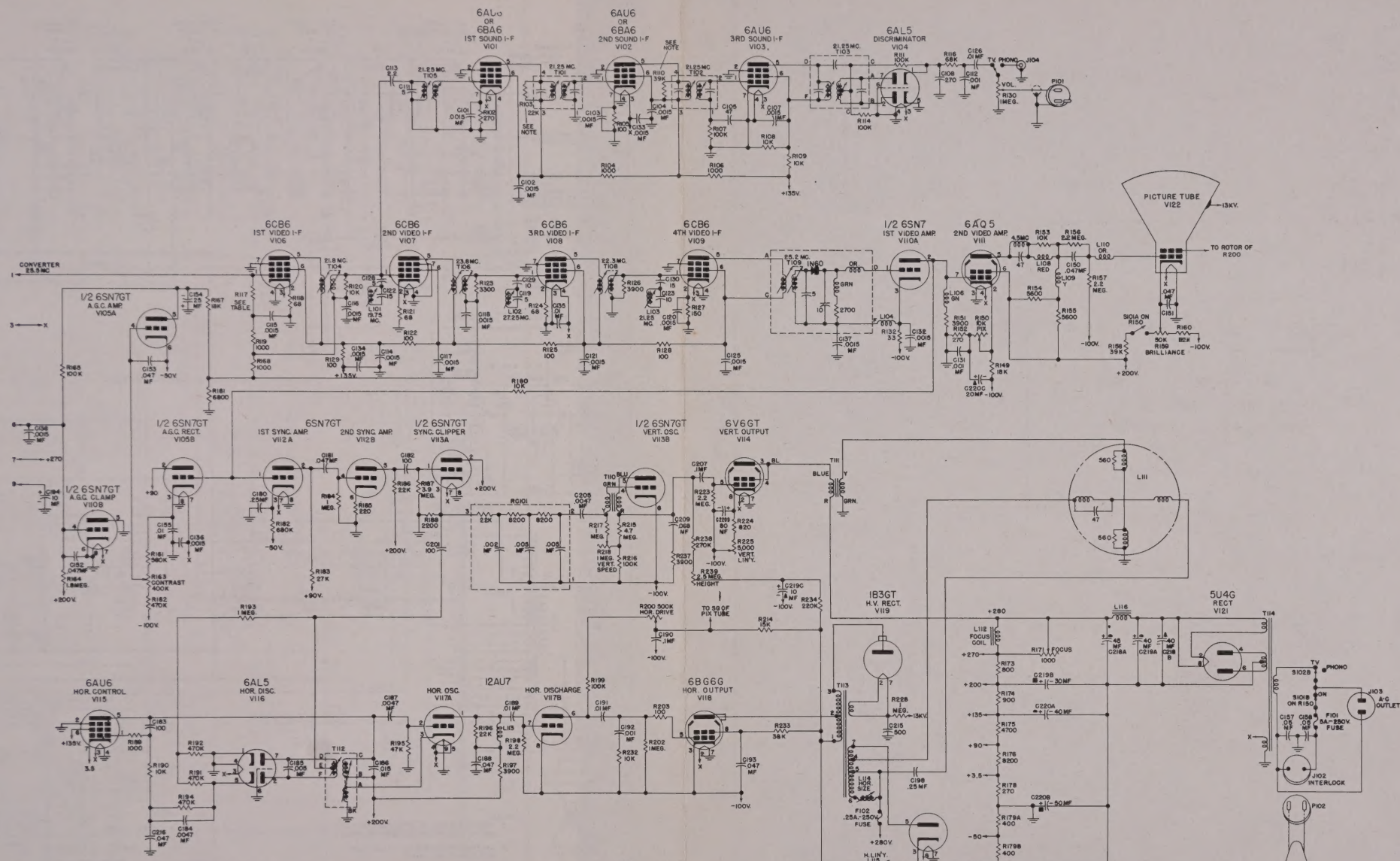
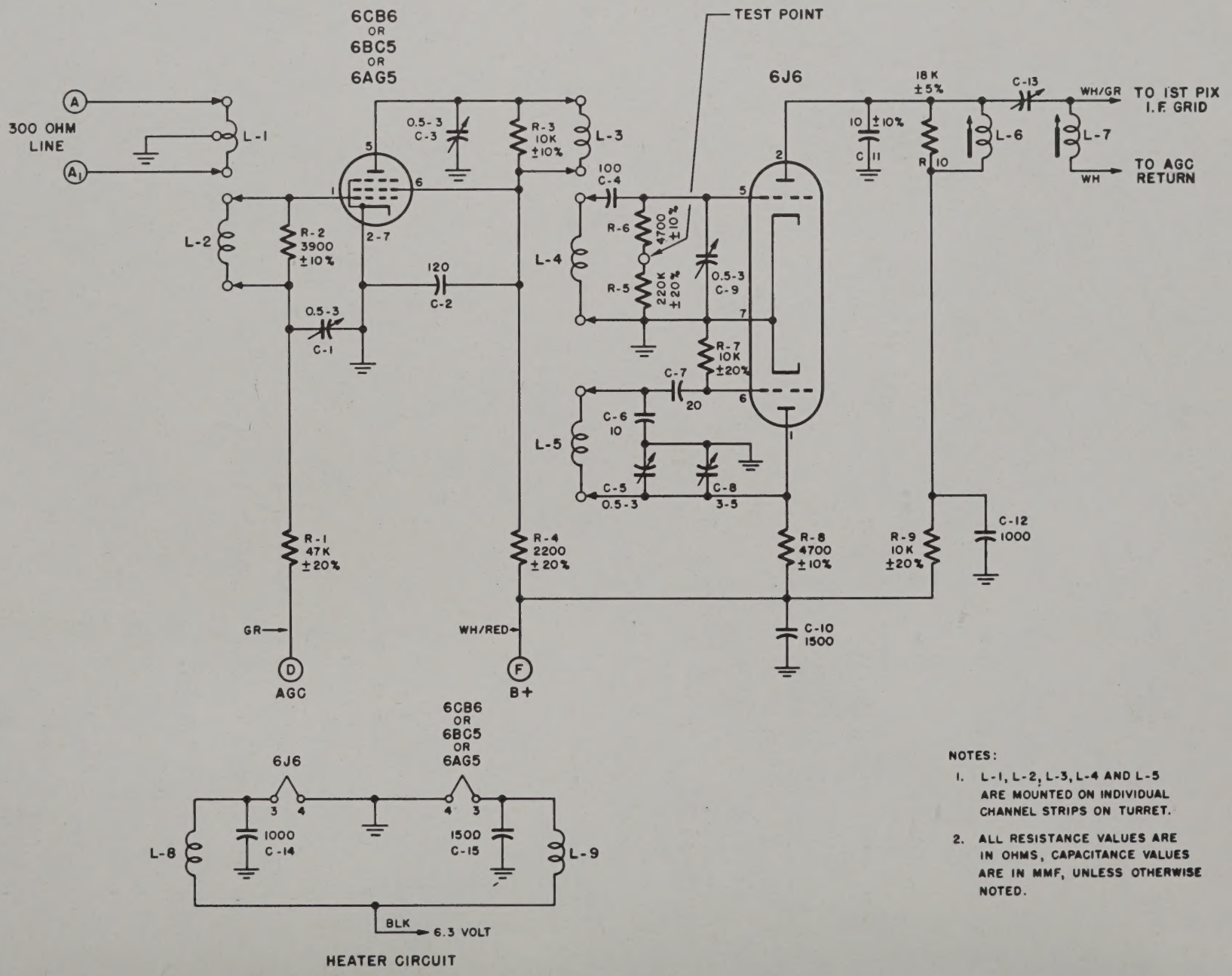
The suffix letter "A," following the Folder number, indicates a "Preliminary Data Folder," designed to provide immediately data on television receivers—pending coverage in standard PHOTOFACT Form.

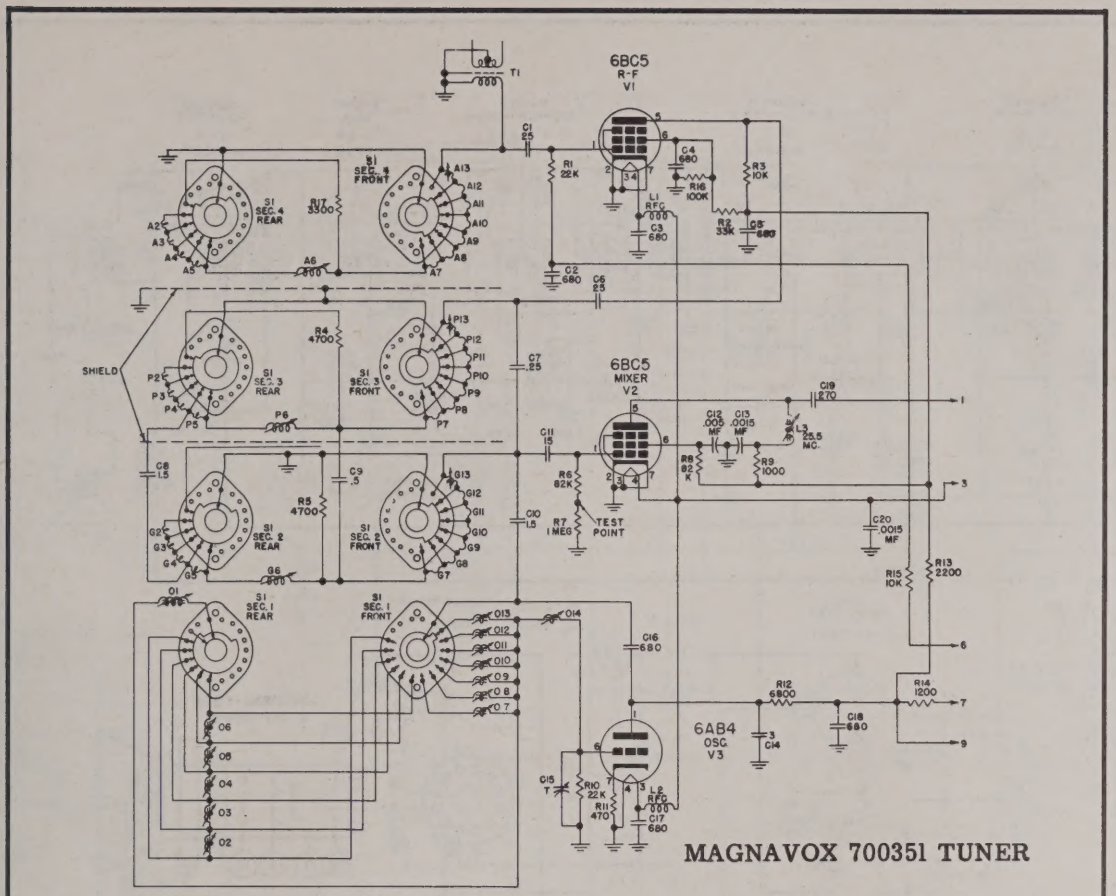

6AL6 OR 6BA6 1ST SOUND I-F V101
6AU6 OR 6BA6 2ND SOUND I-F V102
6AU6 3RD SOUND I-F V103
6AL5 DISCRIMINATOR V104
6CB6 1ST VIDEO I-F V106
6CB6 2ND VIDEO I-F V107
6CB6 3RD VIDEO I-F V108
6CB6 4TH VIDEO I-F V109
1/2 6SN7 1ST VIDEO AMP. V110A
6AQ5 2ND VIDEO AMP. V111
PICTURE TUBE V122
1/2 6SN7GT A.G.C. AMP. V105A
1/2 6SN7GT A.G.C. RECT. V105B
1/2 6SN7GT A.G.C. CLAMP V110B
6SN7GT 1ST SYNC. AMP. 2ND SYNC. AMP. V112A V112B
1/2 6SN7GT SYNC. CLIPPER V113A
1/2 6SN7GT VERT. OSC. V113B
6V6GT VERT. OUTPUT V114
6AU6 HOR. CONTROL V115
6AL5 HOR. DISC. V116
12AU7 HOR. OSC. V117A
HOR. DISCHARGE V117B
6BG6G HOR. OUTPUT V118
1B3GT H.V. RECT. V119
6W4GT DAMPER V120
5U4G RECT V121
CONVERTER 25.5 MC
TO ROTOR OF R200
+13KV.
+280
+270
+200
+135
+90
+3.5
-50
-100
+200V.
-100V.
+135V.
+90V.
+280V.
TV PHONO J104
VOL. R130 1 MEG.
J103 A-C OUTLET
J102 INTERLOCK
P102
F101 5A-250V. FUSE
F102 .25A.-250V. FUSE
SIOIA ON R150
BRILLIANCE
H. LIN. L115
L111
L112 FOCUS COIL
L116
T101
T102
T103
T104
T105
T106
T108
T109
T110
T111
T112
T113
T114
R200 500K HOR. DRIVE
TO 5BP1 PIX TUBE
R214 1K
R225 5,000 VERT. LIN'Y.
R238 270K
R239 2.5 MEG. HEIGHT
R228 MEG. -13KV.
R233 38K
R234 220K
R171 FOCUS 1000
R150 10K PIX
R151 3900
R152 270
R153 10K
R154 5600
R155 5600
R156 2.2 MEG.
R157 2.2 MEG.
R158 39K
R159 50K BRILLIANCE
R160 82K
R149 18K
R130 1 MEG.
R131 100K
R132 33
R133 68K
R134 270
R135 .001 MF
R136 .001 MF
R137 .001 MF
R138 .001 MF
R139 .001 MF
R140 .001 MF
R141 .001 MF
R142 .001 MF
R143 .001 MF
R144 .001 MF
R145 .001 MF
R146 .001 MF
R147 .001 MF
R148 .001 MF
R149 .001 MF
R150 .001 MF
R151 .001 MF
R152 .001 MF
R153 .001 MF
R154 .001 MF
R155 .001 MF
R156 .001 MF
R157 .001 MF
R158 .001 MF
R159 .001 MF
R160 .001 MF
R161 .001 MF
R162 .001 MF
R163 CONTRAST 400K
R164 1.8 MEGS.
R165 100K
R166 .001 MF
R167 18K
R168 1000
R169 1000
R170 1000
R171 1000
R172 800
R173 800
R174 900
R175 4700
R176 8200
R177 270
R178 270
R179A 400
R179B 400
R180 10K
R181 6800
R182 680K
R183 27K
R184 1.8MEGS.
R185 220
R186 22K
R187 3.9 MEG.
R188 2200
R189 1000
R190 10K
R191 470K
R192 470K
R193 1 MEG.
R194 470K
R195 47K
R196 22K
R197 3900
R198 2.2 MEG.
R199 100K
R200 500K HOR. DRIVE
R201 100
R202 1 MEG.
R203 100
R204 100
R205 .0047 MF
R206 .0015 MF
R207 .1 MF
R208 .1 MF
R209 .068 MF
R210 .1 MF
R211 .1 MF
R212 .1 MF
R213 .1 MF
R214 1K
R215 4.7 MEG.
R216 100K
R217 1 MEG.
R218 1 MEG. VERT. SPEED
R219 .1 MF
R220 .1 MF
R221 .1 MF
R222 .1 MF
R223 2.2 MEG.
R224 820
R225 5,000 VERT. LIN'Y.
R226 .1 MF
R227 .1 MF
R228 MEG. -13KV.
R229 .1 MF
R230 .1 MF
R231 .1 MF
R232 10K
R233 38K
R234 220K
R235 .1 MF
R236 .1 MF
R237 3900
R238 270K
R239 2.5 MEG. HEIGHT
R240 .1 MF
R241 .1 MF
R242 .1 MF
R243 .1 MF
R244 .1 MF
R245 .1 MF
R246 .1 MF
R247 .1 MF
R248 .1 MF
R249 .1 MF
R250 .1 MF
R251 .1 MF
R252 .1 MF

Tuner # 470651 used in Emerson Chassis 120144-B.

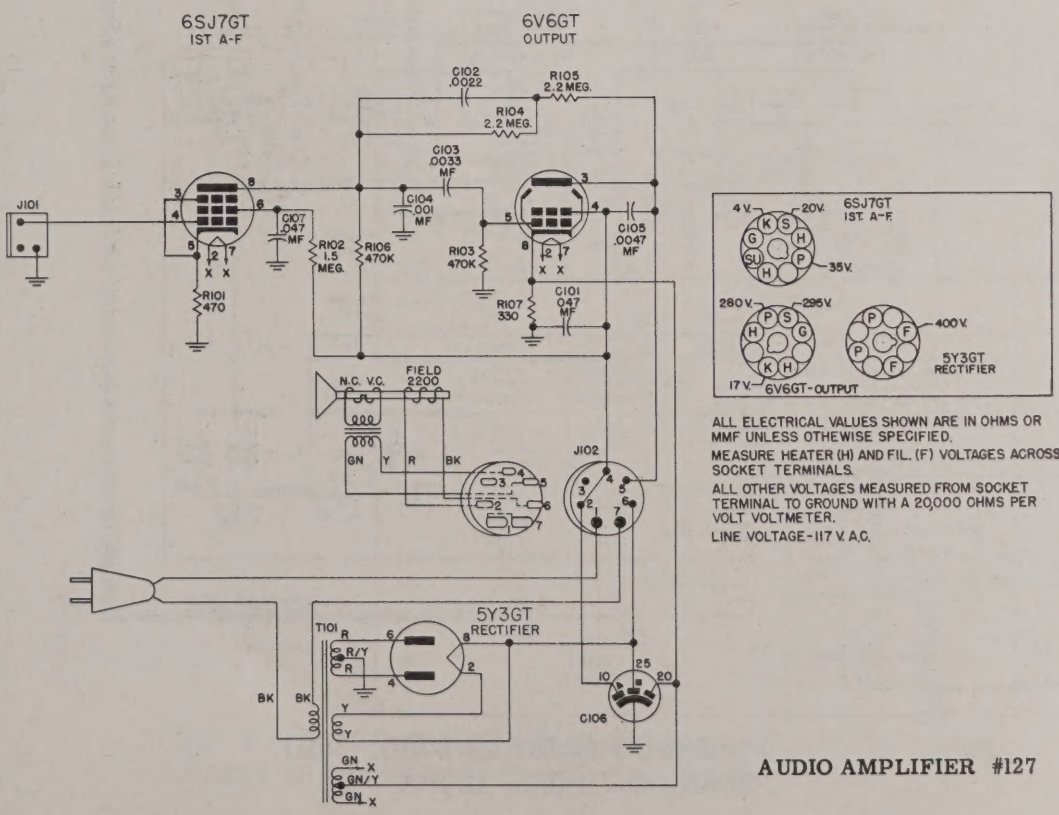


NOTES:

1. L-1, L-2, L-3, L-4 AND L-5 ARE MOUNTED ON INDIVIDUAL CHANNEL STRIPS ON TURRET.
2. ALL RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN MMF, UNLESS OTHERWISE NOTED.



MAGNAVOX 700351 TUNER



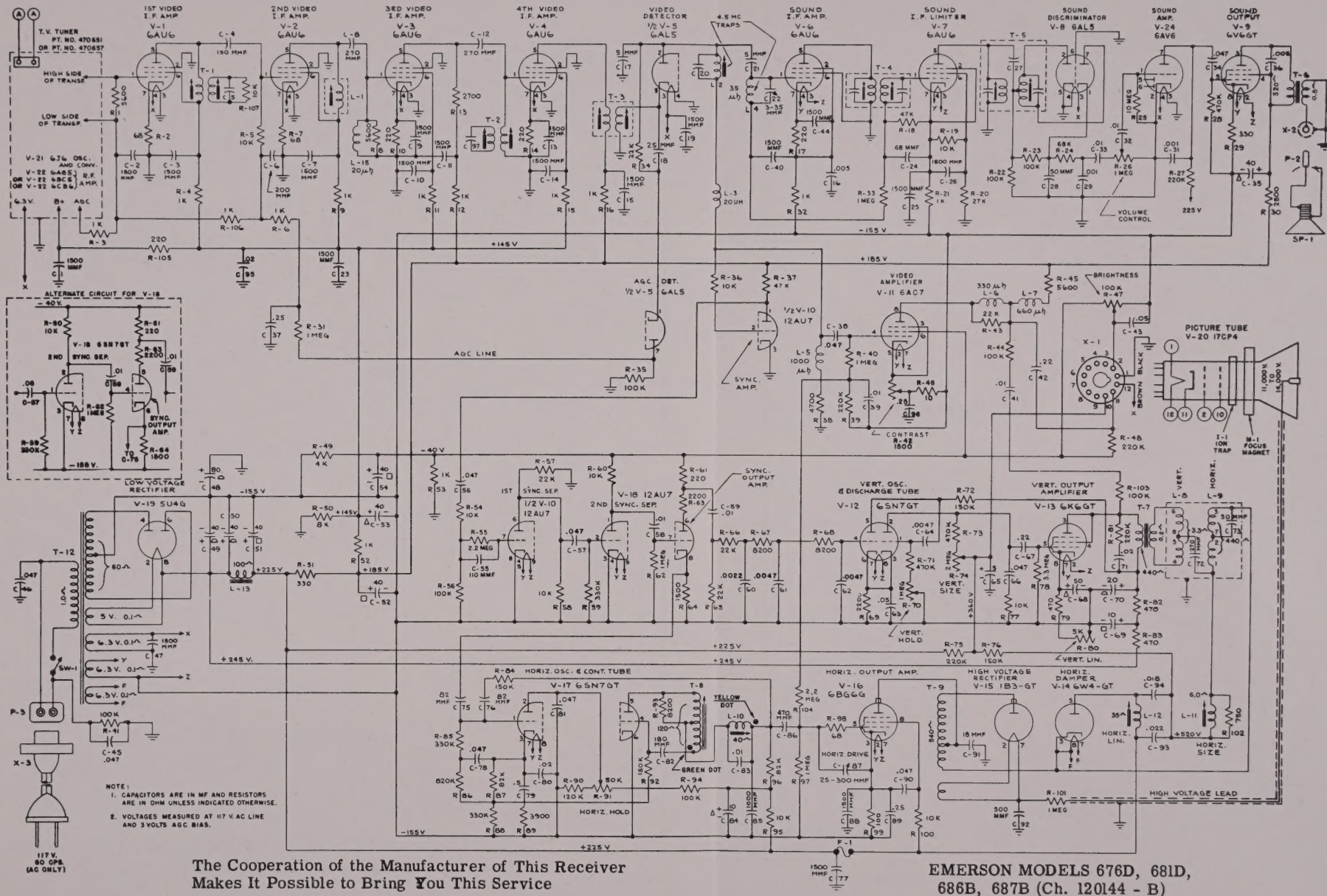
ALL ELECTRICAL VALUES SHOWN ARE IN OHMS OR MMF UNLESS OTHEWISE SPECIFIED.

MEASURE HEATER (H) AND FIL. (F) VOLTAGES ACROSS SOCKET TERMINALS.

ALL OTHER VOLTAGES MEASURED FROM SOCKET TERMINAL TO GROUND WITH A 20,000 OHMS PER VOLT VOLTMETER.

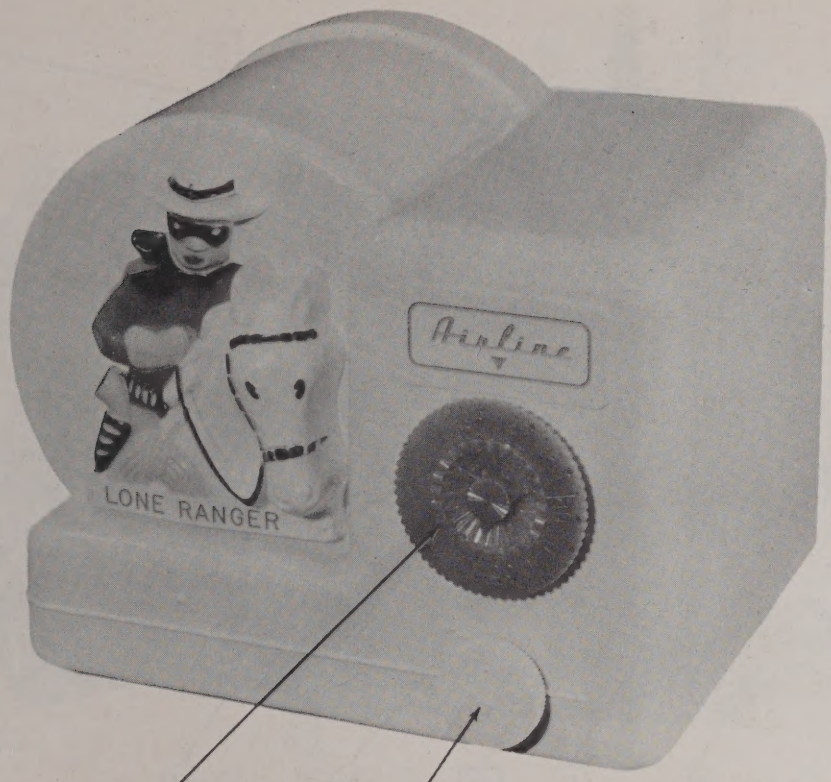
LINE VOLTAGE-117 V. A.C.

AUDIO AMPLIFIER #127



The Cooperation of the Manufacturer of This Receiver Makes It Possible to Bring You This Service

EMERSON MODELS 676D, 681D, 686B, 687B (Ch. 120144 - B)



AIRLINE MODELS
05GCB-1540A, 05GCB-1541A

AIRLINE MODELS
05GCB-1540A, 05GCB-1541A

AIRLINE MODEL 05GCB-1541A

TRADE NAME	Airline, Models 05GCB-1540A, 05GCB-1541A
SUPPLIER	Montgomery Ward & Co., 619 Chicago Ave., Chicago, Illinois
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (FOUR)	Types 12BE6 Converter, 12AV6 or 12AT6 Det.-AVC-AF, 50C5 Power Output, 35W4 Rectifier
POWER SUPPLY	105-125 Volts AC RATING .16 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set dial turn tuning gang fully closed and set the last reference mark at the low frequency end of the dial scale even with the reference mark on the cabinet.
Use isolation transformer if available. If not connect a .1MFD capacitor in series with low side of signal generator and B-.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to stator on rear section of tuning gang. Low side to B-.	455KC (400~ Mod)	Tuning gang fully open.	Across voice coil.	A1, A2	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	47MMF	High side to antenna terminal. (disconnect hank). Low side to B-.	1650KC	"	"	A3	Adjust for maximum output.
3.	"	"	1500KC	Tune for max. output.	"	A4	"

HOWARD W. SAMS & CO., INC. • Indianapolis 1, Indiana

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PARTS LIST AND DESCRIPTIONS

AIRLINE MODEL 05WG-1541A

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		AIRLINE PART No.	STANDARD REPLACEMENT		
V1	Converter	12BE6	12BE6	7CH	
V2A	Det.-AVC-AF	12AT6	12AT6	7BT	
B	Det.-AVC-AF	12AV6	12AV6	7BT	
V3	Power Output	50C5	50C5	7CV	
V4	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	AIRLINE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	50	150	C-5.436-1	PRS150/50-50		EDL5515		TVA-2453	Filter Red
B	50	150							Filter Green
C2	20	25	5.425	PRS25/25		BR252A		TVA-1205	Output Cathode
C3	1500		D-4.108-12	SI1500	D6-152	1W5D15	GP2L-0015	29C8	Ant. Coupling
C4	.05	400	D-3.103-11	P488-05	DF-503	PTE4S5		4TM-S5	Line Isolation
C5	47		C-4.109-12	SI47	D6-470	5W5Q5	GP1K-47	19C25	Diode RF Filter
C6	5000		D-3.103-4	BPD-005	DD-502	1D5D5	811 -005	29C1	Audio Coupling
C7	.05	400	D-3.103-11	P488-05	DF-503	PTE4S5		4TM-S5	Audio Coupling
C8	.01	400	D-3.103-7	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Output Plate
C9	.1	400	D-3.103-23	P488-1	DF-104	PTE4P1		4TM-P1	Line Filter

CONTROLS

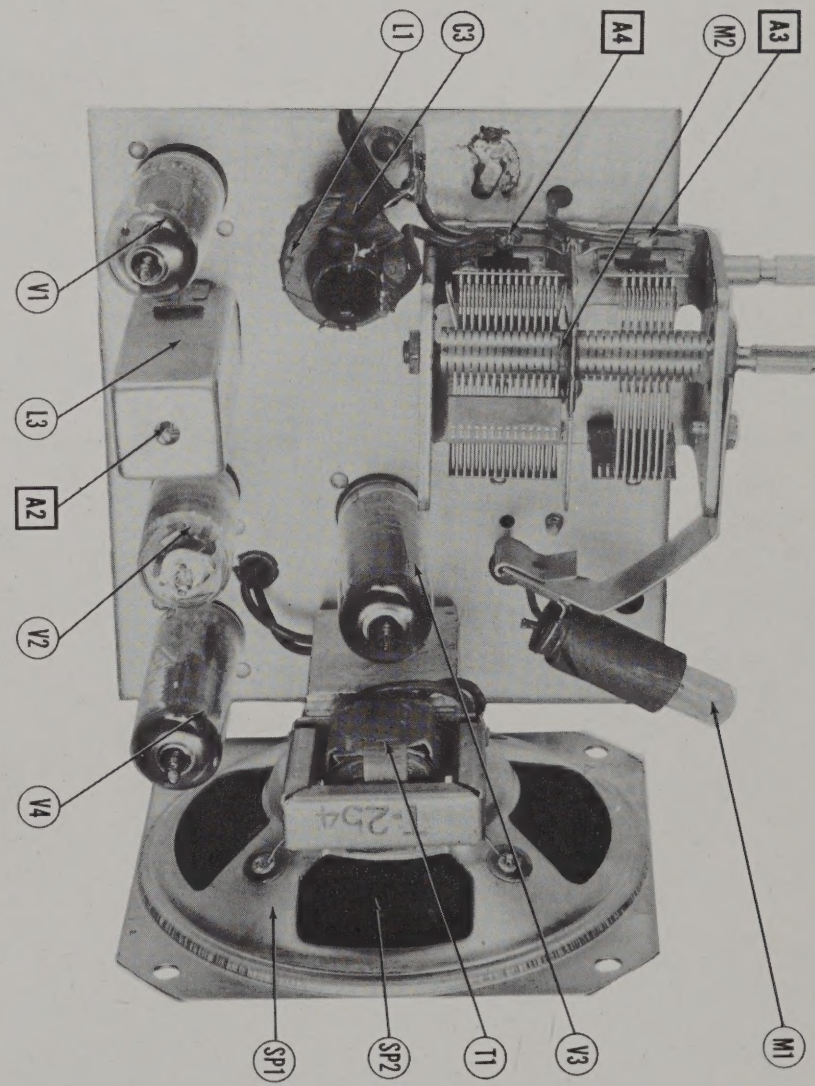
ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	AIRLINE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	2Meg	½	C8.201-10	Q13-139	AG-66-Z		Volume Control
B	Shaft		Not Req	Not Req	KSS-3		Attach to R1A per instructions
C	Switch		Not Req	76-1	SWB		Attach to R1A per instructions

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	AIRLINE PART No.	IRC PART No.	
R2	12KΩ	½	D-7.100-62		Osc. Grid
R3	6.8Meg	½	D-7.100-178	BTS-6.8Meg	AVC Network
R4	10Meg	½	D-7.100-185	BTS-10Meg	AF Amp. Grid
R5	220KΩ	½	D-7.100-115	BTS-220K	AF Amp. Plate
R6	390KΩ	½	D-7.100-125	BTS-390K	Output Grid
R7	200Ω	½			Output Cathode - see Note
R8	1200Ω	1	D-7.102-27	BTA-1200	Filter
R9	22Ω	½	D-7.102-215		Surge Limiter
R10	47Ω	2	D-7.103-31	BW-2-47	Filament Dropping - Wire Wound

Note: Some models use 150Ω Resistor in this application

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIRLINE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	1.7KΩ	3.7Ω	153Ω	.4Ω		A-3332①	A-3025 ①	R0-2 ①	① Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			AIRLINE PART No.	JENSEN PART No.	QUAM PART No.	
SP1	FIELD	V. C. IMP.	B30.332-1	ST-113 ② Model P4-X	4A1 ②	② Use Universal mounting bracket
	PM	3.7Ω				
SP2	CONE DIA.	V. C. DIA.				
	4"	9/16"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	AIRLINE PART No.	MEISSNER PART No.	
L1	Ant. Coil	28Ω	42Ω	B-1.534		
L2	Osc. Coil	.6Ω	4.5Ω	C-1.402-4		
L3	IF Trans.	15Ω	16Ω	C-1.445-2		

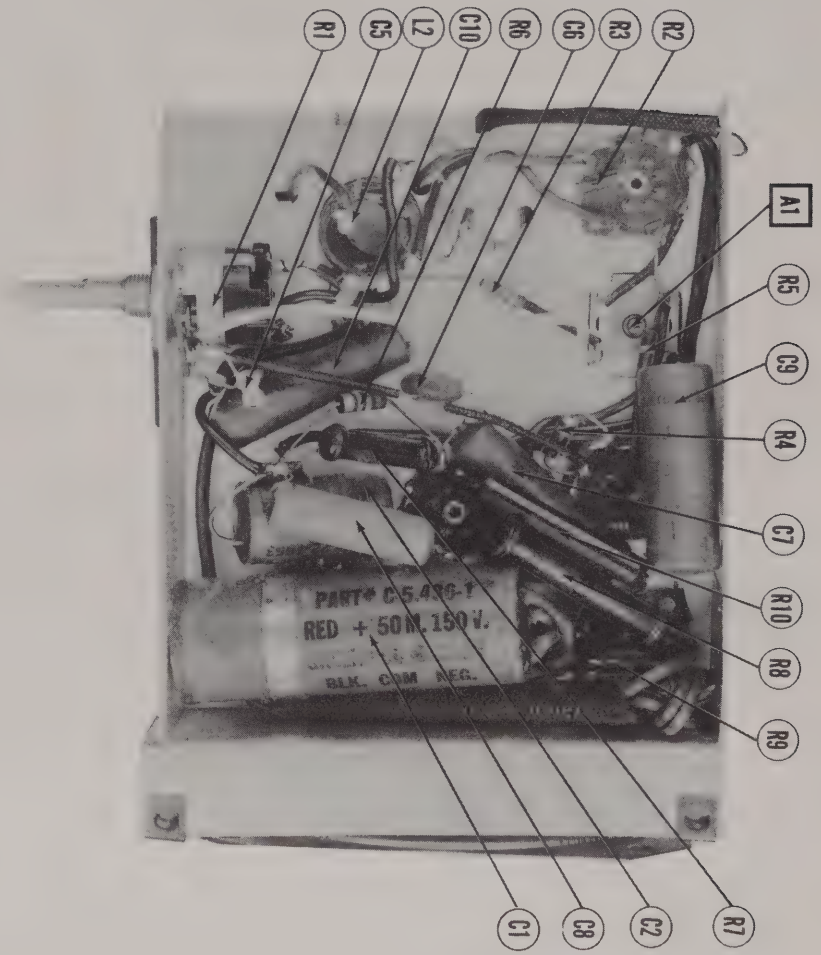
DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					AIRLINE PART No.		
M1	Bayonet	6-8	.15	Brown			Type #47

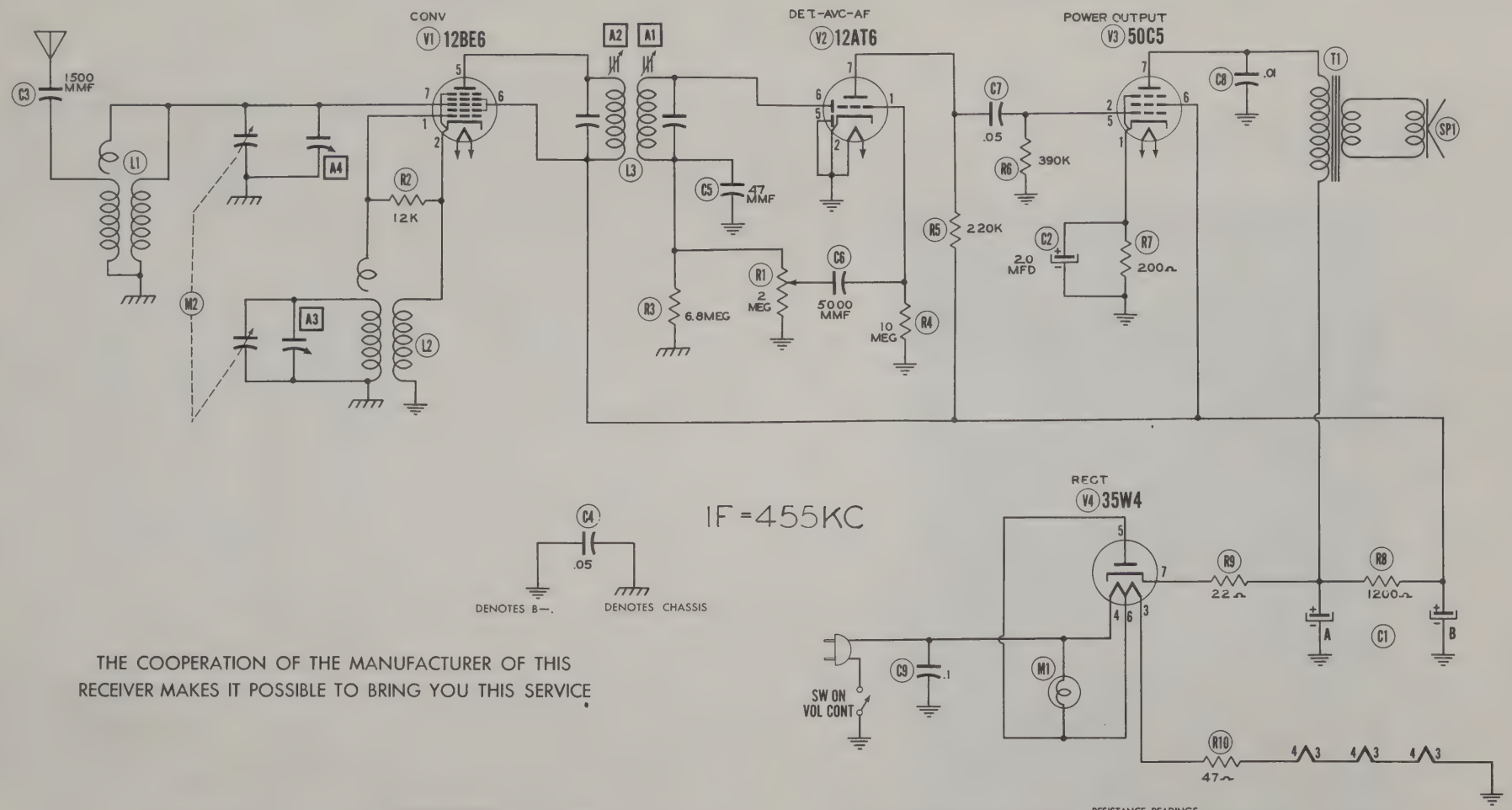
MISCELLANEOUS

ITEM No.	PART NAME	AIRLINE PART No.	NOTES
M2	2 Gang Var. Cap.	2.225	(25-444MMF, 20-147MMF)
	Cabinet	D-12.418	
	Knob	C-13.133	Tuning
	Knob	B-13.102	Volume
	Front Plague	C-13.214	Rudolph
	Front Plague	C-13.215	Lone Ranger

CHASSIS—BOTTOM VIEW



AIRLINE MODEL 05WG-1541A



THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	§-7.8VDC	0V	12VAC	25VAC	95VDC	95VDC	-.1VDC
V 2	12AT6	-.5VDC	0V	0V	12VAC	0V	-.6VDC	45VDC
V 3	50C5	7.7VDC	0V	25VAC	75VAC	0V	95VDC	108VDC
V 4	35W4	112VDC	0V	82VAC	117VAC	108VAC	108VAC	115VDC

§ TAKEN WITH VACUUM TUBE VOLTMETER

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	12KΩ	.6Ω	13Ω	26Ω	†1.2KΩ	†1.2KΩ	9Meg
V 2	12AT6	10Meg	0Ω	0Ω	13Ω	0Ω	2Meg	†220KΩ
V 3	50C5	200Ω	390KΩ	26Ω	75Ω	390KΩ	†1.2KΩ	†175Ω
V 4	35W4	†22Ω	Inf.	120Ω	160Ω	150Ω	150Ω	70KΩ

† MEASURED FROM PIN 7 OF V4

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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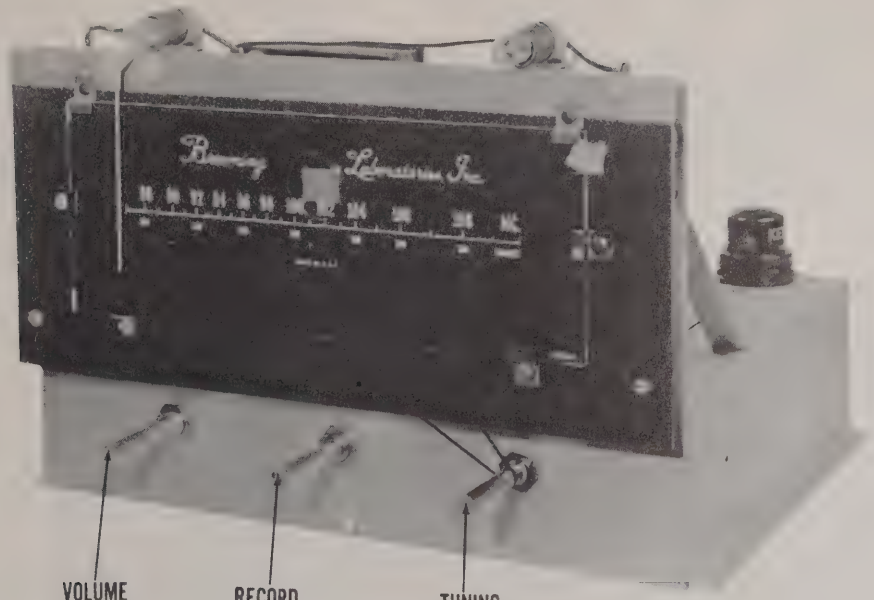
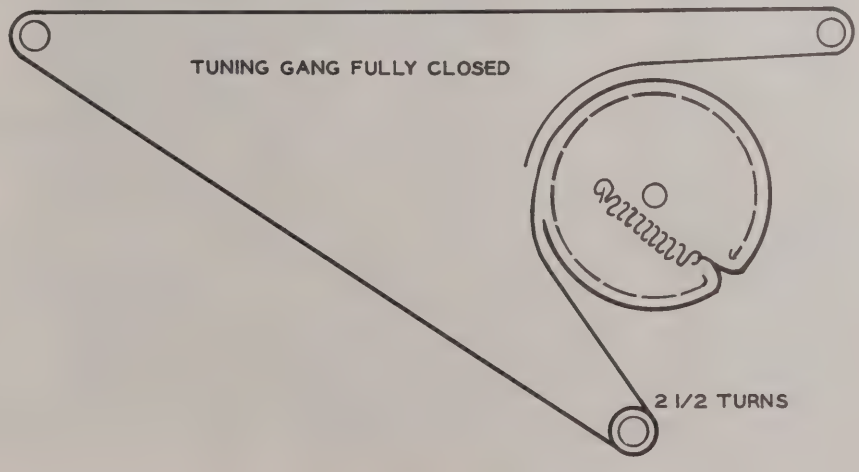
131-2

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



TRADE NAME	Browning, Model RV-10A
MANUFACTURER	Browning Laboratories, Inc., Winchester, Mass.
TYPE SET	AC Operated FM Superheterodyne Tuner
TUBES (TEN)	Types 6AU6 RF Amp., 7F8 Converter, 6AU6 1st IF Amp., 6AU6 2nd IF Amp., 6SJ7 1st Limiter, 6SJ7 2nd Limiter, 6H6 Discriminator, 6J6 Reactance, 6AL7 Tuning Indicator, 5Y3GT Rectifier
POWER SUPPLY	110-120 Volts AC RATING .68 Amp. @ 117 Volts AC
TUNING RANGE—FREQ. MOD.	88-108MC



DIAL CORD DRIVE

BROWNING
MODEL RV-10A

BROWNING
MODEL RV-10A

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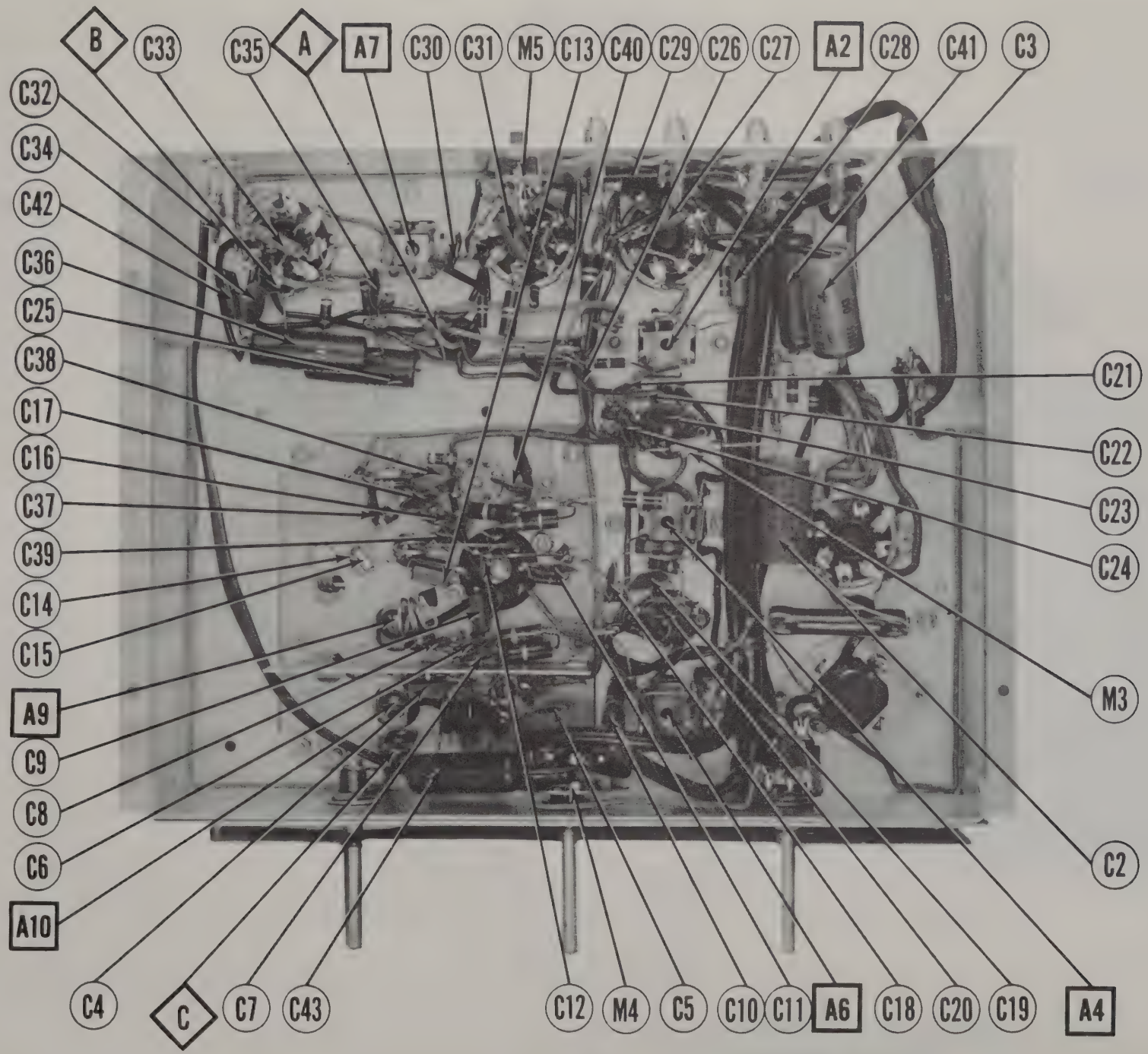
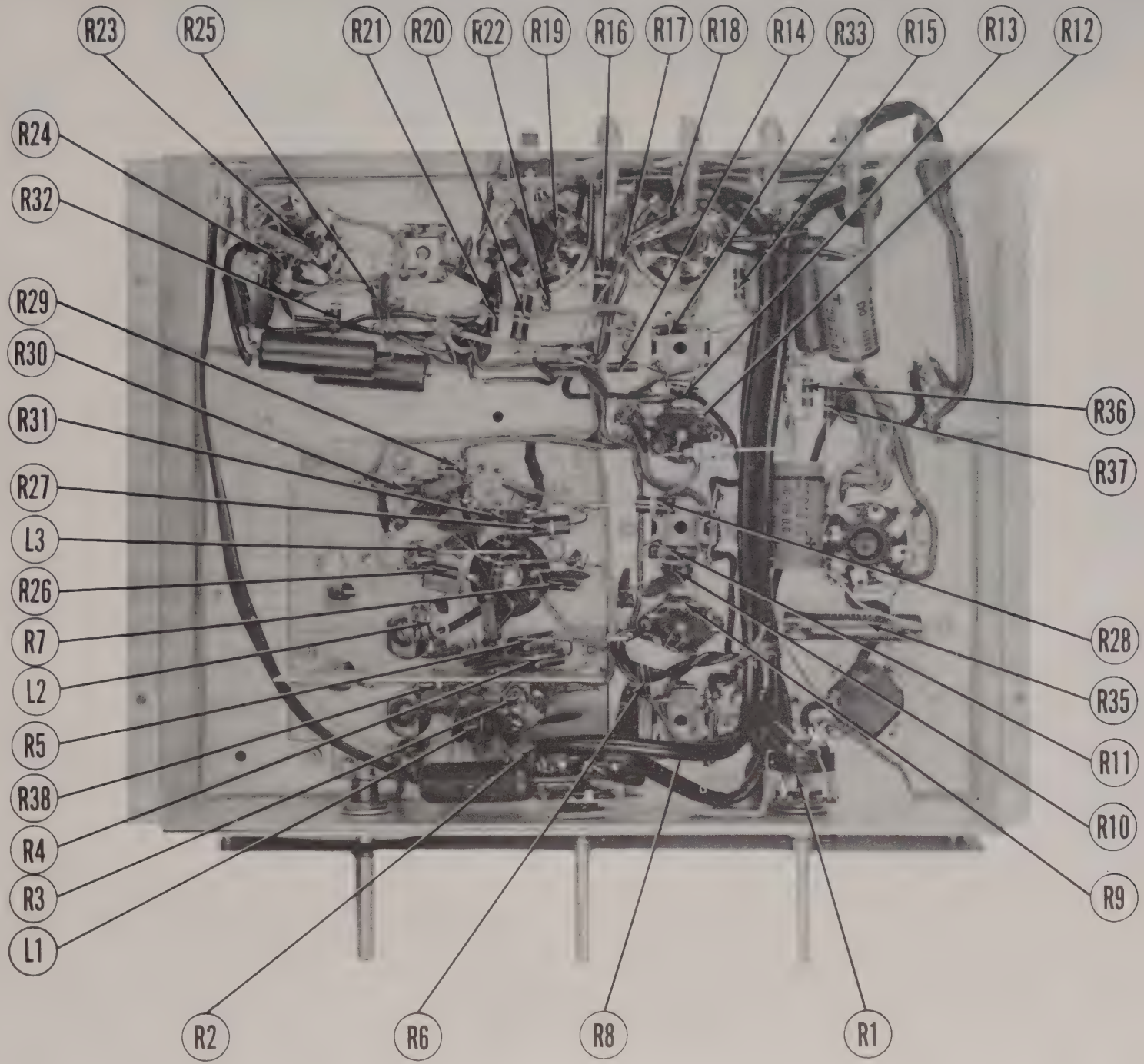

B
C33
C35
A
A7
C30
C31
M5
C13
C40
C29
C26
C27
A2
C28
C41
C3
C32
C34
C42
C36
C25
C38
C17
C16
C37
C39
C14
C15
A9
C9
C8
C6
A10
C4
C
C7
C43
C12
M4
C5
C10
C11
A6
C18
C20
C19
A4
C21
C22
C23
C24
M3
C2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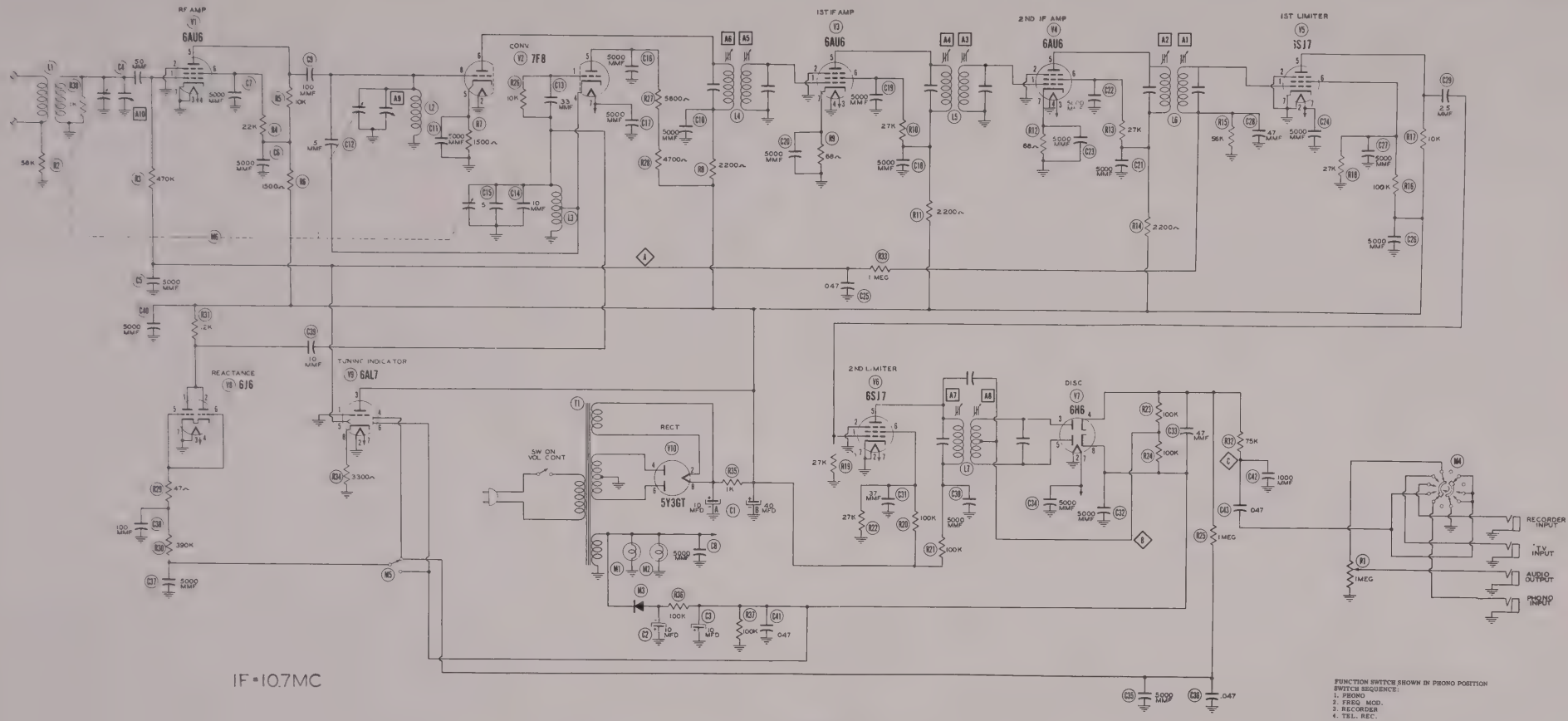

FUNCTION SWITCH SHOWN IN PHONO POSITION
SWITCH SEQUENCE:
1. PHONO
2. FREQ. MOD.
3. RECORDER
4. TEL. REC.

FUNCTION SWITCH IN FM POSITION
▲ AFC SWITCH OFF
■ AFC SWITCH ON

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6AU6	-.7VDC	0V	0V	6.3VAC	125VDC	170VDC	0V	
V 2	7F8	1-1.5VDC	0V	190VDC	0V	5.7VDC	▲265VDC ■275VDC	6.3VAC	0V
V 3	6AU6	0V	0V	6.2VAC	0V	240VDC	125VDC	1VDC	
V 4	6AU6	0V	0V	6.3VAC	0V	240VDC	125VDC	1VDC	
V 5	6S17	0V	0V	0V	-.4VDC	0V	45VDC	6.3VAC	250VDC
V 6	6S17	0V	0V	0V	-.6VDC	0V	45VDC	6.3Vac	70VDC
V 7	6H6	0V	0V	-4VDC	-3VDC	-4VDC	-4VDC	6.3VAC	-3.6VDC
V 8	6J6	▲165VDC ■175VDC	▲165VDC ■175VDC	6.3VAC	0V	▲-1.5VDC ■-.8VDC	▲-1.5VDC ■-.8VDC	0V	
V 9	6AL7GT	0V	0V	375VDC	▲-.8VDC ■-.8VDC	-.5VDC	-3.6VDC	6.3VAC	.8VDC
V 10	5Y3GT	0V	340VDC	0V	320VAC	0V	320VAC	0V	340VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6AU6	1.5Meg	0Ω	0Ω	.1Ω	†12KΩ	†24KΩ	0Ω	
V 2	7F8	10KΩ	0Ω	†11KΩ	0Ω	1.5KΩ	†3.2KΩ	.1Ω	0Ω
V 3	6AU6	1.5Ω	0Ω	.1Ω	0Ω	†3.2KΩ	†30KΩ	68Ω	
V 4	6AU6	1.5Ω	0Ω	.1Ω	0Ω	†3.2KΩ	†30KΩ	68Ω	
V 5	6S17	0Ω	0Ω	0Ω	56KΩ	0Ω	†40KΩ	.1Ω	†1MΩ
V 6	6S17	0Ω	0Ω	0Ω	27KΩ	0Ω	†40KΩ	.1Ω	†100KΩ
V 7	6H6	0Ω	0Ω	200KΩ	300KΩ	300KΩ	200KΩ	.1Ω	100KΩ
V 8	6J6	†12KΩ	†12KΩ	.1Ω	0Ω	▲450KΩ ■1.7Meg	▲450KΩ ■1.7Meg	0Ω	
V 9	6AL7GT	0Ω	0Ω	†1KΩ	1.1Meg	1Meg	80KΩ	.1Ω	3.3KΩ
V 10	5Y3GT	Inf.	25KΩ	Inf.	180Ω	Inf.	180Ω	Inf.	25KΩ

† MEASURED FROM PIN 8 OF V10

THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

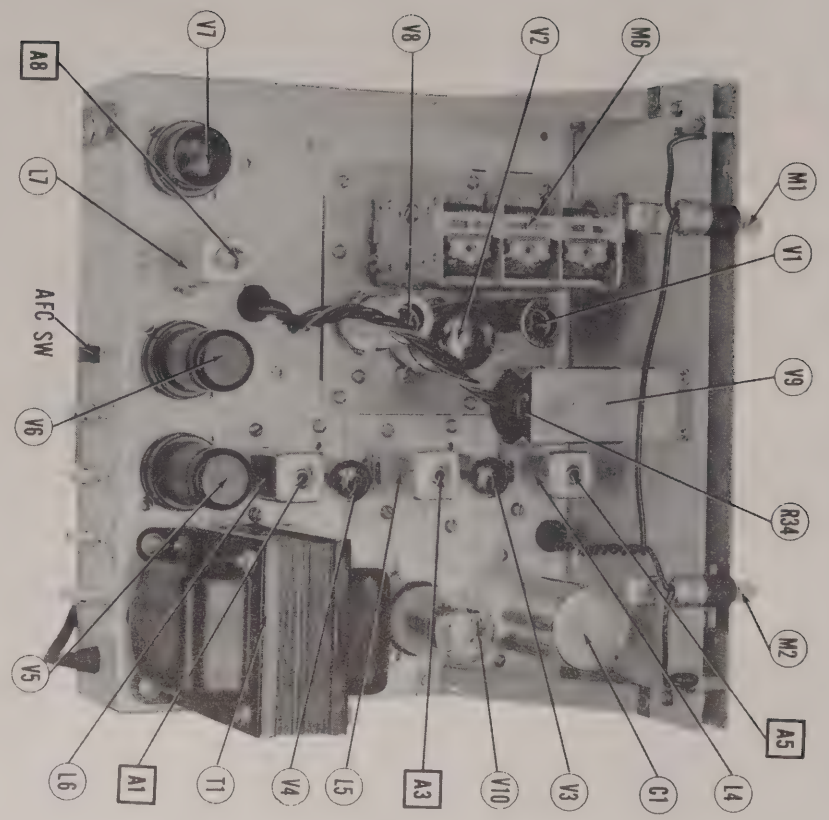
ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		BROWNING PART No.	STANDARD REPLACEMENT		
V1	RF Amplifier	6AU6	6AU6	7BK	
V2	Converter	7F8	7F8	8BW	
V3	1st. IF Ampl.	6AU6	6AU6	7BK	
V4	2nd. IF Ampl.	6AU6	6AU6	7BK	
V5	1st. Limiter	6SJ7	6SJ7	8N	
V6	2nd. Limiter	6SJ7	6SJ7	8N	
V7	Discriminater	6H6	6H6	7Q	
V8	Reactance	6J6	6J6	7BF	
V9	Tuning Indicator	6AL7	6AL7	8CH	
V10	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	BROWNING PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	40	450		AF88J		UPT4445		TVL-2764	● Filter
B	40	450							▲ Filter
C2	10	25		PRS25/10		BR102A		TVA-1204	Bias Filter
C3	10	25		PRS25/10		BR102A		TVA-1204	Bias Filter
C4	50	500		1468-00005	D6-500	5W5Q5	GP1K-50	1FM-45	RF Coupling
C5	5000			BPD-005	DD-502	1D5D5	811-005	29C1	AVC Filter
C6	5000			BPD-005	DD-502	1D5D5	811-005	29C1	RF Amp. Decoupling
C7	5000			BPD-005	DD-502	1D5D5	811-005	29C1	RF Amp. Screen
C8	5000			BPD-005	DD-502	1D5D5	811-005	29C1	RF Amp. Fil.
C9	100	500		1468-0001	D6-101	5W5T1	GP1K-100	1FM-31	RF Coupling
C10	5000			BPD-005	DD-502	1D5D5	811-005	29C1	Conv. Plate Decoupling
C11	5000			BPD-005	DD-502	1D5D5	811-005	29C1	Conv. Cathode
C12	5			SI5NP0	TCZ-4.7	5R5V5	NP0K-5	MS-55	Osc. Coupling
C13	33	500		SI33	D6-330	5W5Q3	GP1K-33	MS-43	Osc. Grid Cap.
C14	10						N220K-10		Fixed Trimmer
C15	5			SI5N750			N750K-5		Fixed Trimmer
C16	5000			BPD-005	DD-502	1D5D5	811-005	29C1	Osc. Plate Bypass
C17	5000			BPD-005	DD-502	1D5D5	811-005	29C1	Conv. Filament
C18	5000			BPD-005	DD-502	1D5D5	811-005	29C1	1st. IF Decoupling
C19	5000			BPD-005	DD-502	1D5D5	811-005	29C1	1st. IF Screen
C20	5000			BPD-005	DD-502	1D5D5	811-005	29C1	1st. IF Cathode
C21	5000			BPD-005	DD-502	1D5D5	811-005	29C1	2nd. IF Decoupling
C22	5000			BPD-005	DD-502	1D5D5	811-005	29C1	2nd. IF Screen
C23	5000			BPD-005	DD-502	1D5D5	811-005	29C1	2nd. IF Cathode
C24	5000			BPD-005	DD-502	1D5D5	811-005	29C1	2nd. IF Fil.
C25	.047	600		P688-047	DF-503	PTE6S5		6TM-S47	AVC Filter
C26	5000			BPD-005	DD-502	1D5D5	811-005	29C1	RF Bypass
C27	5000			BPD-005	DD-502	1D5D5	811-005	29C1	1st. Limiter Screen
C28	47	500		1468-00005	D6-470	5W5Q5	GP1K-47	1FM-45	1st. Limiter Grid
C29	25	500		1468-000025	D6-250	5W5Q25	GP1K-25	MS-425	IF Coupling
C30	5000			BPD-005	DD-502	1D5D5	811-005	29C1	2nd. Limiter Plate Dec.
C31	47	500		1468-00005	D6-470	5W5Q5	GP1K-47	1FM-45	2nd. Limiter Screen
C32	5000			BPD-005	DD-502	1D5D5	811-005	29C1	Bias Filter
C33	47	500		1468-00005	D6-470	5W5Q5	GP1K-47	1FM-45	RF Bypass
C34	5000			BPD-005	DD-502	1D5D5	811-005	29C1	Discr. Filament
C35	5000			BPD-005	DD-502	1D5D5	811-005	29C1	AFC Filter
C36	.047	600		P688-047	DF-503	PTE6S5		6TM-S47	AFC Filter
C37	5000			BPD-005	DD-502	1D5D5	811-005	29C1	AFC Filter
C38	100	500		1468-0001	D6-101	5W5T1	GP1K-100	1FM-31	AFC Filter
C39	10	500		1468-00001	D6-100	5W5Q1	GP1K-10	MS-41	AFC Coupling
C40	5000			BPD-005	DD-502	1D5D5	811-005	29C1	RF Bypass
C41	.047	600		P688-047	DF-503	PTE6S5		6TM-S47	Bias Filter
C42	1000	500		1468-001	D6-102	1W5D1	GP2L-001	1FM-21	De-emphasis
C43	.047	600		P688-047	DF-503	PTE6S5		6TM-S47	Audio Coupling

CHASSIS—TOP VIEW



ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap, fully closed and set pointer to last reference mark at low frequency end of dial.
Turn the AFC switch to "off"

IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.005MFD	High side to stator on center section of tuning gang. Low side to chassis.	10.7MC (unmod.)	Tuning gang fully open.	DC Probe to point Ⓐ. Common to chassis.	A1, A2, A3, A4, A5, A6	Adjust for maximum deflection. Attenuate signal gen. to maintain 5 volt reading.
2.	"	"	10.7MC (± 50KC)	"	"		Detune signal gen. to 50KC each side of maximum deflection. If the VTVM reading is not the same at both settings repeat step 1.
3.	"	"	10.7MC	"	DC probe thru 100KΩ to point Ⓑ. Common to chassis.	A7	Adjust for maximum deflection.
4.	"	"	"	"	DC probe to point Ⓒ. Common to chassis.	A8	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 2450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
1.	.005MFD	High side to pin 1 (Grid) of 6AU6 (V4). Low side to chassis.	10.7MC (450KC SWP)	Point of non-interference.	Vert. Amp. to point Ⓑ. Low side to chassis.	A1, A2	Adjust for maximum amplitude and symmetry as per fig. 1.
2.	"	High side to pin 1 (Grid) of 6AU6 (V3). Low side to chassis.	"	"	"	A3, A4	"
3.	"	High side to stator on center section of tuning gang. Low side to chassis.	"	"	"	A5, A6	"
4.	"	"	"	"	Vert. Amp. to point Ⓒ. Low side to chassis.	A7, A8	Adjust A8 so 10.7 MC occurs at center of crossover lines as per fig. 2 Adjust A7 for maximum amplitude and straightness of crossover lines.

RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	105 MC (unmod.)	105MC	DC probe to point Ⓐ. Common to chassis.	L3	Expand or compress coil turns for maximum deflection.
6.	"	"	"	"	"	A9, A10	Adjust for maximum deflection.

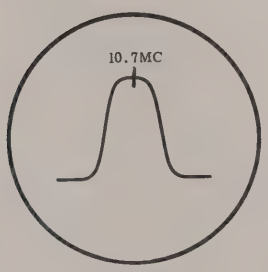


FIG. 1

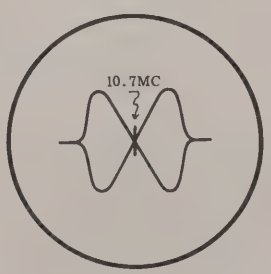


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

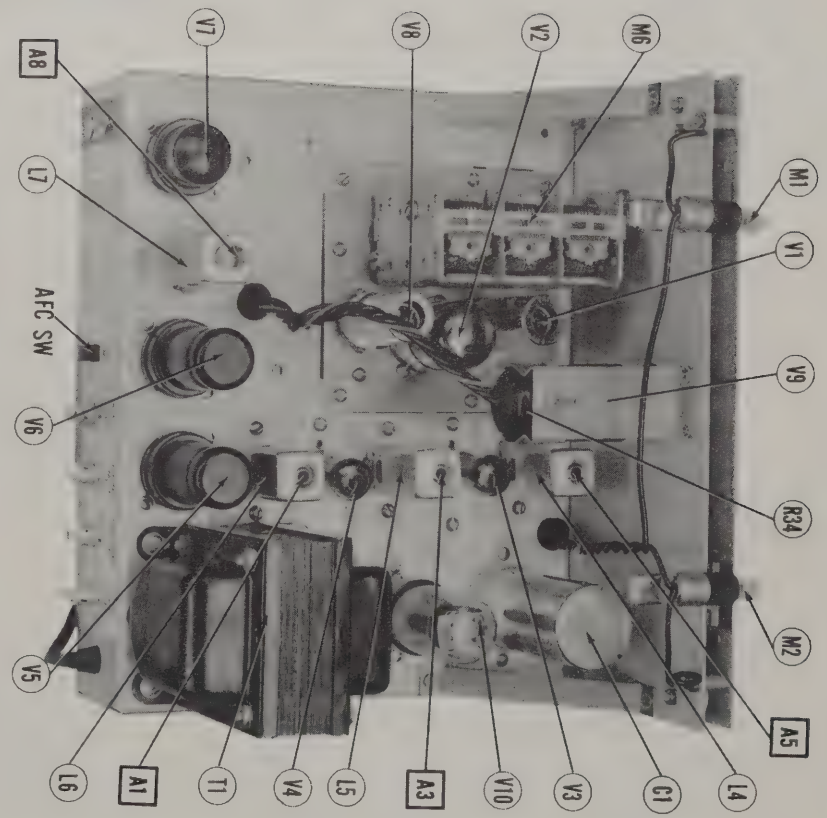
ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		BROWNING PART No.	STANDARD REPLACEMENT		
V1	RF Amplifier	6AU6	6AU6	7BK	
V2	Converter	7F8	7F8	8BW	
V3	1st. IF Ampl.	6AU6	6AU6	7BK	
V4	2nd. IF Ampl.	6AU6	6AU6	7BK	
V5	1st. Limiter	6SJ7	6SJ7	8N	
V6	2nd. Limiter	6SJ7	6SJ7	8N	
V7	Discriminater	6H6	6H6	7Q	
V8	Reactance	6J6	6J6	7BF	
V9	Tuning Indicator	6AL7	6AL7	8CH	
V10	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	BROWNING PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	40	450		AF88J		UPT4445		TVL-2764	• Filter
B	40	450							▲ Filter
C2	10	25		PRS25/10		BR102A		TVA-1204	Bias Filter
C3	10	25		PRS25/10		BR102A		TVA-1204	Bias Filter
C4	50	500		1468-00005	D6-500	5W5Q5	GP1K-50	1FM-45	RF Coupling
C5	5000			BPD-005	DD-502	1D5D5	811-005	29C1	AVC Filter
C6	5000			BPD-005	DD-502	1D5D5	811-005	29C1	RF Amp. Decoupling
C7	5000			BPD-005	DD-502	1D5D5	811-005	29C1	RF Amp. Screen
C8	5000			BPD-005	DD-502	1D5D5	811-005	29C1	RF Amp. Fil.
C9	100	500		1468-0001	D6-101	5W5T1	GP1K-100	1FM-31	RF Coupling
C10	5000			BPD-005	DD-502	1D5D5	811-005	29C1	Conv. Plate Decoupling
C11	5000			BPD-005	DD-502	1D5D5	811-005	29C1	Conv. Cathode
C12	5			SI5NP0	TCZ-4.7	5R5V5	NP0K-5	MS-55	Osc. Coupling
C13	33	500		SI33	D6-330	5W5Q3	GP1K-33	MS-43	Osc. Grid Cap.
C14	10						N220K-10		Fixed Trimmer
C15	5			SI5N750			N750K-5		Fixed Trimmer
C16	5000			BPD-005	DD-502	1D5D5	811-005	29C1	Osc. Plate Bypass
C17	5000			BPD-005	DD-502	1D5D5	811-005	29C1	Conv. Filament
C18	5000			BPD-005	DD-502	1D5D5	811-005	29C1	1st. IF Decoupling
C19	5000			BPD-005	DD-502	1D5D5	811-005	29C1	1st. IF Screen
C20	5000			BPD-005	DD-502	1D5D5	811-005	29C1	1st. IF Cathode
C21	5000			BPD-005	DD-502	1D5D5	811-005	29C1	2nd. IF Decoupling
C22	5000			BPD-005	DD-502	1D5D5	811-005	29C1	2nd. IF Screen
C23	5000			BPD-005	DD-502	1D5D5	811-005	29C1	2nd. IF Cathode
C24	5000			BPD-005	DD-502	1D5D5	811-005	29C1	2nd. IF Fil.
C25	.047	600		P688-047	DF-503	PTE6S5		6TM-S47	AVC Filter
C26	5000			BPD-005	DD-502	1D5D5	811-005	29C1	RF Bypass
C27	5000			BPD-005	DD-502	1D5D5	811-005	29C1	1st. Limiter Screen
C28	47	500		1468-00005	D6-470	5W5Q5	GP1K-47	1FM-45	1st. Limiter Grid
C29	25	500		1468-000025	D6-250	5W5Q25	GP1K-25	MS-425	IF Coupling
C30	5000			BPD-005	DD-502	1D5D5	811-005	29C1	2nd. Limiter Plate Dec.
C31	47	500		1468-00005	D6-470	5W5Q5	GP1K-47	1FM-45	2nd. Limiter Screen
C32	5000			BPD-005	DD-502	1D5D5	811-005	29C1	Bias Filter
C33	47	500		1468-00005	D6-470	5W5Q5	GP1K-47	1FM-45	RF Bypass
C34	5000			BPD-005	DD-502	1D5D5	811-005	29C1	Discr. Filament
C35	5000			BPD-005	DD-502	1D5D5	811-005	29C1	AFC Filter
C36	.047	600		P688-047	DF-503	PTE6S5		6TM-S47	AFC Filter
C37	5000			BPD-005	DD-502	1D5D5	811-005	29C1	AFC Filter
C38	100	500		1468-0001	D6-101	5W5T1	GP1K-100	1FM-31	AFC Filter
C39	10	500		1468-00001	D6-100	5W5Q1	GP1K-10	MS-41	AFC Coupling
C40	5000			BPD-005	DD-502	1D5D5	811-005	29C1	RF Bypass
C41	.047	600		P688-047	DF-503	PTE6S5		6TM-S47	Bias Filter
C42	1000	500		1468-001	D6-102	1W5D1	GP2L-001	1FM-21	De-emphasis
C43	.047	600		P688-047	DF-503	PTE6S5		6TM-S47	Audio Coupling

CHASSIS—TOP VIEW



DEWALD
MODEL D-517

DEWALD
MODEL D-517

DEWALD MODEL D-517

TRADE NAME	Dewald, Model D-517
MANUFACTURER	Dewald Radio Mfg. Corp., 35-15 37th Ave., Long Island City, New York
TYPE SET	Three Power Operated Portable Superheterodyne Receiver with Loop Antenna
TUBES (FOUR)	Types 1R5 Converter, 1T4 or 1U4 IF Amp., 1U5 Det.-AVC-AF, 3V4 Power Output
RATING	.15 Amp. @ 117 Volts AC or 105 MA @ 4.5 Volts DC and 13MA @ 67.5 Volts DC
POWER SUPPLY	110-120 Volts AC-DC or 4.5 Volts "A" Supply and 67.5 Volts "B" Supply
TUNING RANGE—BROADCAST	540-1700KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning gang fully closed and set pointer to the index mark near the left hand end of the dial backplate. Use battery power if possible. If AC power is used, use an isolation transformer when available. If not, connect a .1MFD capacitor in series with low side of the signal generator and B-.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to stator on rear section of tuning gang. Low side to chassis.	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy antenna to 200MMF to reduce hum modulation.
2.		Loop	1700KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output
3.		Loop	1500KC	Tune for max. output.	"	A6	"

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

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PARTS LIST AND DESCRIPTIONS

DEWALD MODEL D-517

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		DEWALD PART No.	STANDARD REPLACEMENT		
V1	Converter	1R5	1R5	7AT	
V2A	IF Amplifier	1T4	1T4	6AR	
B	IF Amplifier	1U4	1U4	6AR	
V3	Det.-AVC-AF	1U5	1U5	6BW	
V4	Power Output	3V4	3V4	6BX	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	DEWALD PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	50	150	2020E-2	PRS106D50A		EDL5315X20		TVA-3433	Filter Yellow
B	30	150							Filter Red
C	200	15							Fil. Bypass Blue
C2	.05	200		P288-05	DF-503	PTE4S5		2TM-S5	AVC Filter
C3	47			S147	D6-470	5W5Q5	GP1K-47	19C25	Osc. Grid Cap.
C4	.02	200		P488-02	DF-203	PTE4S2		2TM-S2	Osc. Decoupling
C5	.1	200		P288-1	DF-104	PTE4P1		2TM-P1	Filament Bypass
C6	5000			BPD-005	DD-502	1D5D5	811-005	29C1	IF Grid Filter
C7	.25	200		P488-25		GP2P25		2TM-P25	RF Bypass
C8	220			S1220	D6-221	5W5T25	GP2K-220	19C13	Diode RF Filter
C9	.001	200		P688-001	D6-102	PTE6D1	GP2L-001	6TM-D1	Audio Coupling
C10	.01	200		P488-01	D6-103	PTE4S1	821-01	4TM-S1	AF Amp. Screen
C11	100			S1100	D6-101	5W5T1	GP1K-100	19C11	AF Amp. Plate
C12	.01	200		P488-01	D6-103	PTE4S1	821-01	4TM-S1	Audio Coupling
C10	.001	200		P688-001	D6-102	PTE6D1	GP2L-001	6TM-D1	Output Plate
C14	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	Line Filter

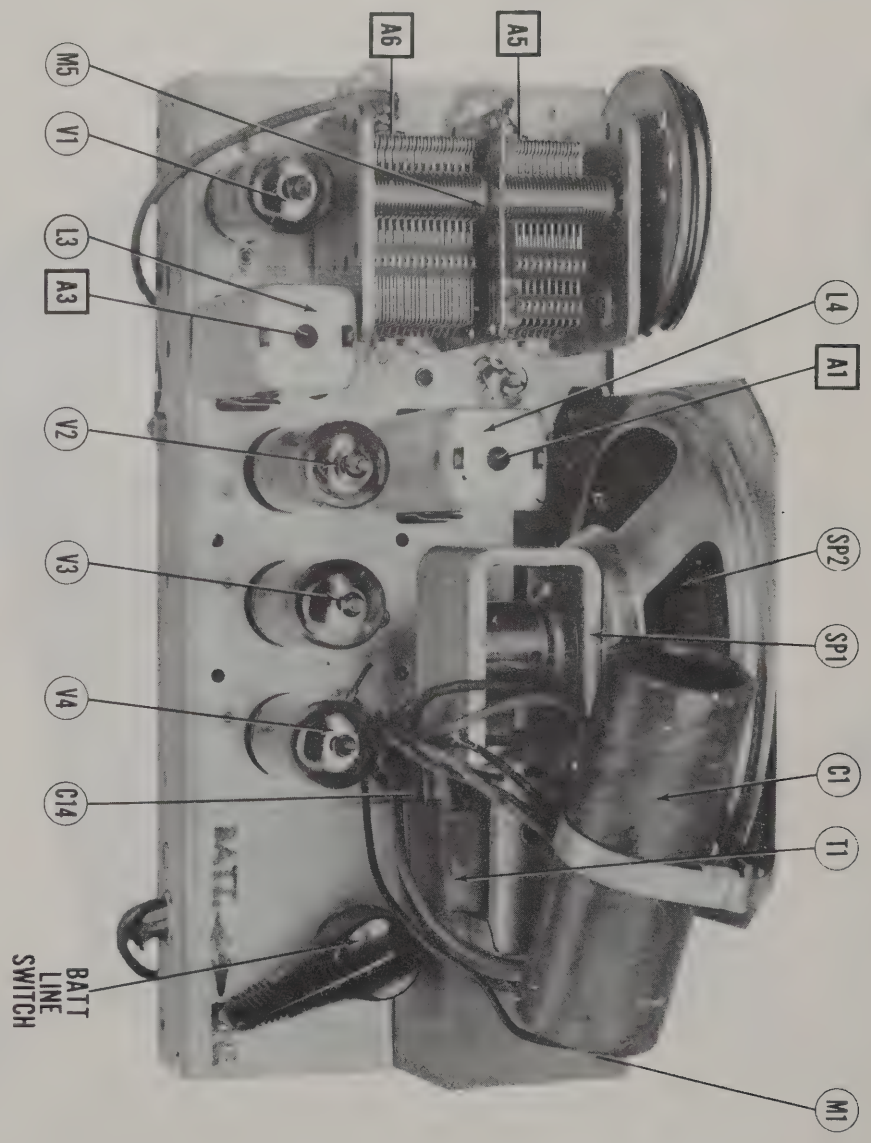
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	DEWALD PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	1Meg	½	3012	Q13-137	AM-63-Z	BSK-60-S	Volume Control
B	Shaft		Not Req	Not Req	KSS-3	Not Req	Attach to R1A per instructions
C	Switch		Not Req	76-2	SWB-2	Not Req	Attach to R1A per instructions

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	DEWALD PART No.	IRC PART No.	
R2	100KΩ	½			Osc. Grid
R3	10KΩ	½			Osc. Anode
R4	3.9Meg	½		BTS-3.9Meg	IF Amp. Grid
R5	3.9Meg	½		BTS-3.9Meg	AVC Network
R6	10Meg	½		BTS-10Meg	AF Amp. Grid
R7	4.7Meg	½		BTS-4.7Meg	AF Amp. Screen
R8	1Meg	½		BTS-1Meg	AF Amp. Plate
R9	1Meg	½		BTS-1Meg	Output Grid
R10	180Ω	½		BTS-180	Filament Shunt
R11	220Ω	½		BTS-220	Filament Shunt
R12	270Ω	½		BTS-270	Filament Shunt
R13	1200Ω	½		BTS-1200	Filament String
R14	27Ω	½		BW-½-27	Filament Dropping - Wire Wound
R15	1800Ω	½		BTS-1800	Filament String - See Note
R16A	2100Ω				Filament String - Wire Wound
B	75Ω	10W			Filter - Wire Wound
R17	2700Ω	½		BTS-2700	Filter
R18	150Ω	½		BTS-150	Bias Network

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		DEWALD PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	2.3KΩ	3.2Ω	170Ω	.53Ω		A-3876 ①	A-3025 ①	R0-2 ①	① Bend mounting tabs down file out slots and mount on original brackets

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			DEWALD PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	V. C. IMP.		ST113		
SP1	PM	3.2Ω	7003C-3	Mod P4-X	4A1	
	CONE DIA.	V. C. DIA.				
SP2	4"	9/16				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	DEWALD PART No.	MEISSNER PART No.	
L1	Loop Ant.	2.8Ω		1037		
L2	Osc. Coil	1.7Ω	5.6Ω	1034	14-1060	
L3	1st IF	26Ω	26Ω	1027E-4		
L4	2nd IF	26Ω	26Ω	1027E-2		

SELENIUM RECTIFIER

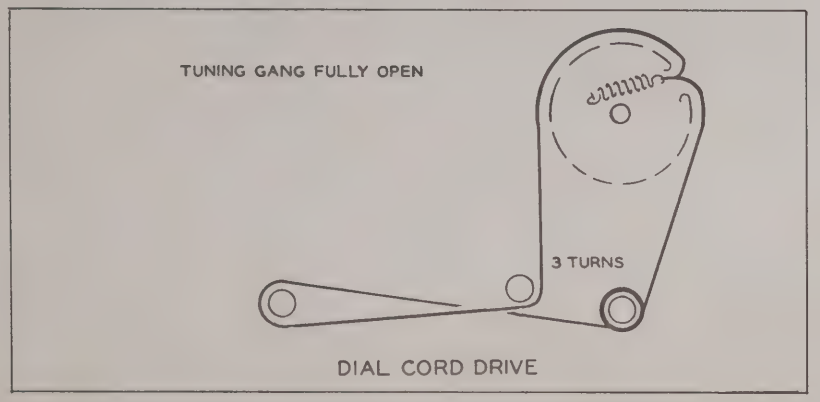
ITEM No.	RATING	REPLACEMENT DATA			NOTES
	CURRENT	DEWALD PART No.	SYLVANIA PART No.	SELETRON PART No.	
M1	.068A	8018	NB-5	5M4	

BATTERIES

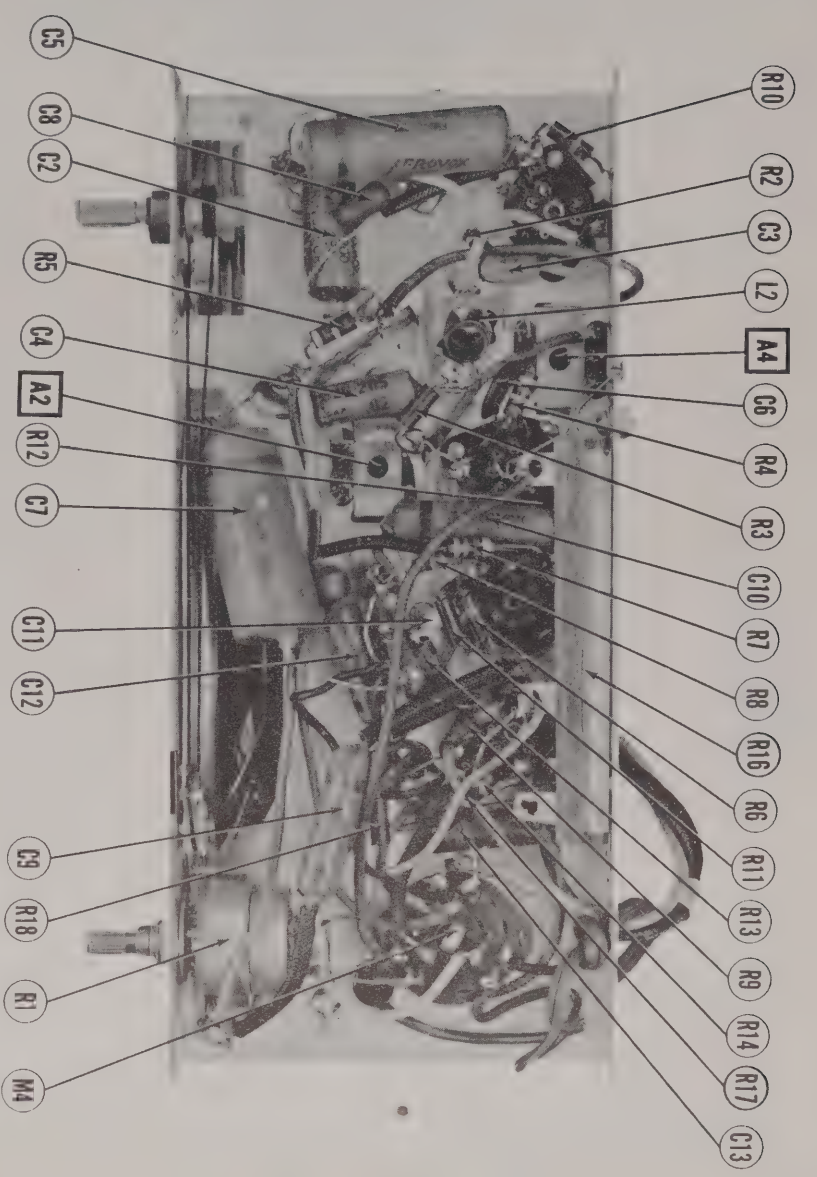
ITEM No.	VOLTAGE	DEWALD PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M2	4.5V "A"		746			G3			
M3	67.5V "B"			467			XX45		

MISCELLANEOUS

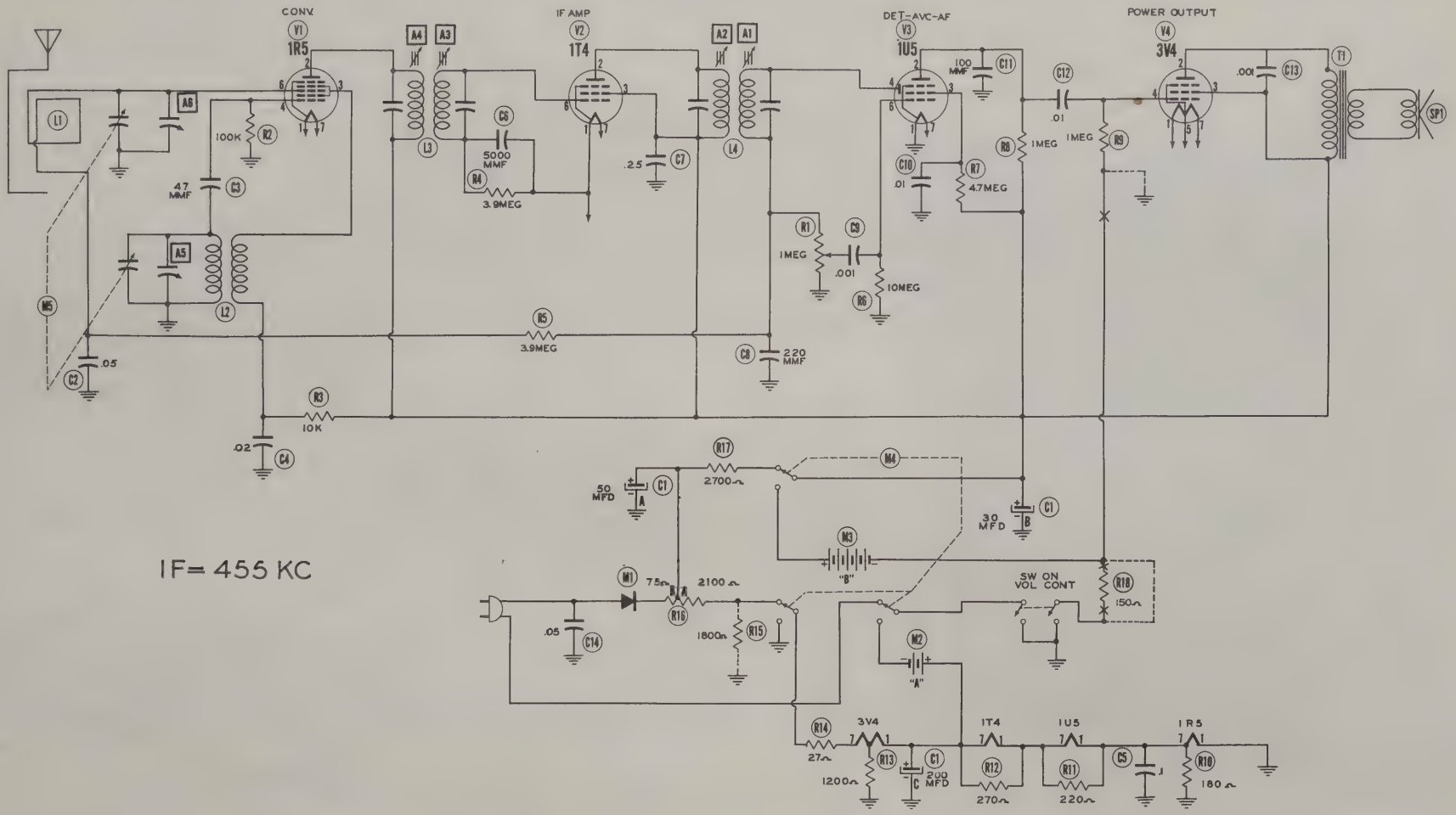
ITEM No.	PART NAME	DEWALD PART No.	NOTES
M4	Switch	2017B	AC/DC - Battery
M5	2 Gang Var. Cap.	4055A	(24-465MMF, 25-193MMF)
	Knobs		



CHASSIS—BOTTOM VIEW



DEWALD MODEL D-517



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1R5	0V	75VDC	50VDC	§-7.8VDC	0V	.1VDC	1.4VDC
V 2	1T4	2.8VDC	75VDC	75VDC	0V	2.8VDC	.1VDC	4VDC
V 3	1U5	1.4VDC	9.2VDC	3.8VDC	.2VDC	0V	.1VDC	.28VDC
V 4	3V4	4VDC	72VDC	75VDC	0V	5.5VDC	0V	7.2VDC

§ TAKEN WITH VACUUM TUBE VOLTMETER

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1R5	*	†2.8KΩ	†13KΩ	100KΩ	*	4.9Meg	*
V 2	1T4	*	†2.8KΩ	†2.8KΩ	Inf.	*	3.9Meg	*
V 3	1U5	*	†1Meg	†4.7Meg	1Meg	Inf.	10Meg	*
V 4	3V4	*	†2.9KΩ	†2.8KΩ	150Ω	*	1Meg	*

POWER SWITCH ON
V & R TAKEN IN AC-DC POSITION

* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE
† MEASURED FROM OUTPUT OF M1

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The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

500
600

PHOTOFACT* Folder

*TRADE MARK

DUMONT
MODEL RA-117A

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MODEL "ANDOVER"

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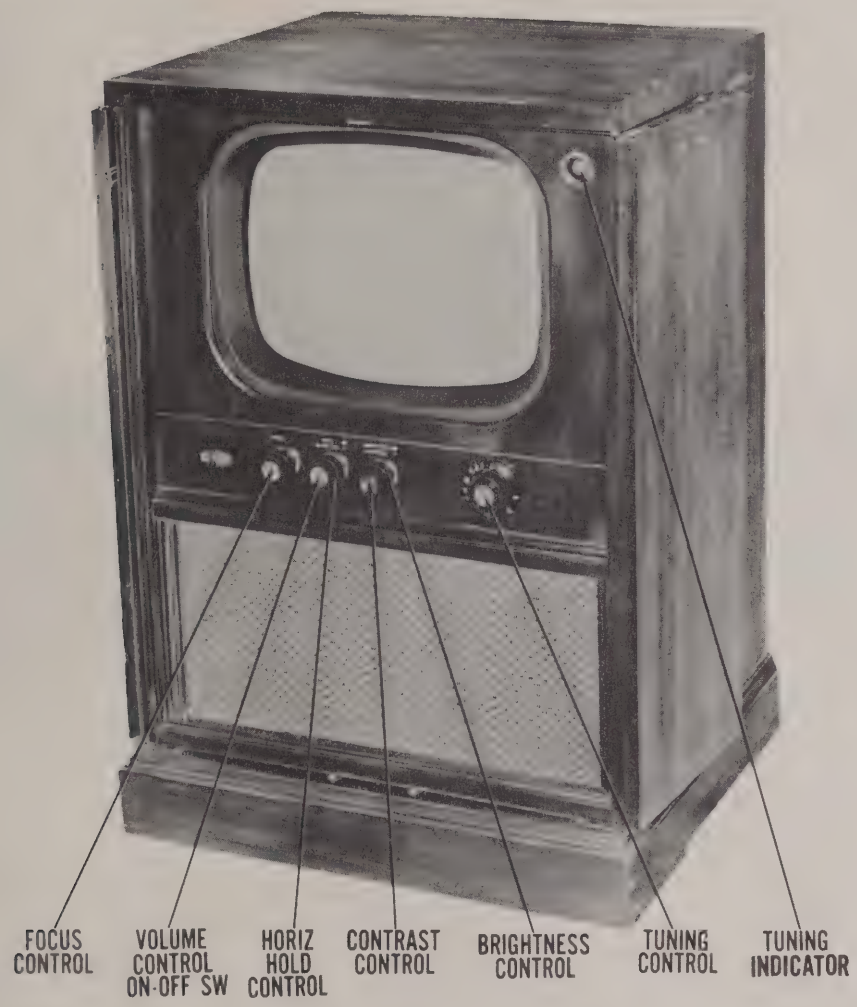

DUMONT
MODEL RA-117A

DUMONT MODEL RA117A "ANDOVER"

TRADE NAME	Dumont, Model RA117A "Andover, Carlton, Park Lane, Strathmore, Sumter"
MANUFACTURER	Allen B. Dumont Labs., Inc., 2 Main St., Passiac, New Jersey
TYPE SET	Television Receiver
TUBES	Twenty Four
POWER SUPPLY	110-120 Volts AC - 60 Cycle
RATING	2.02 Amp. @ 117 Volts AC
TUNING RANGE—	44-216MC (Continuous Tuning)

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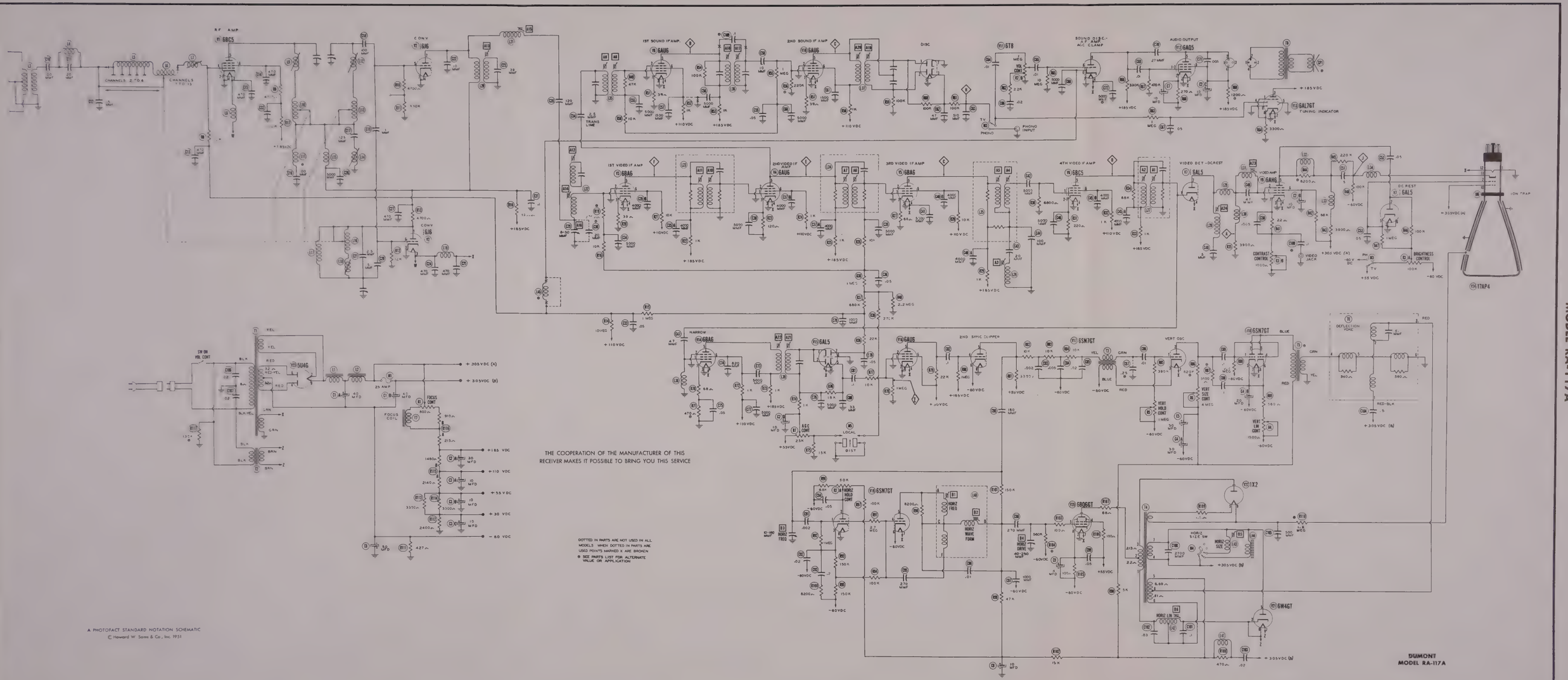

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DOTTED IN PARTS ARE NOT USED IN ALL MODELS WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN

⊙ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

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DUMONT
MODEL RA-117A

DUMONT
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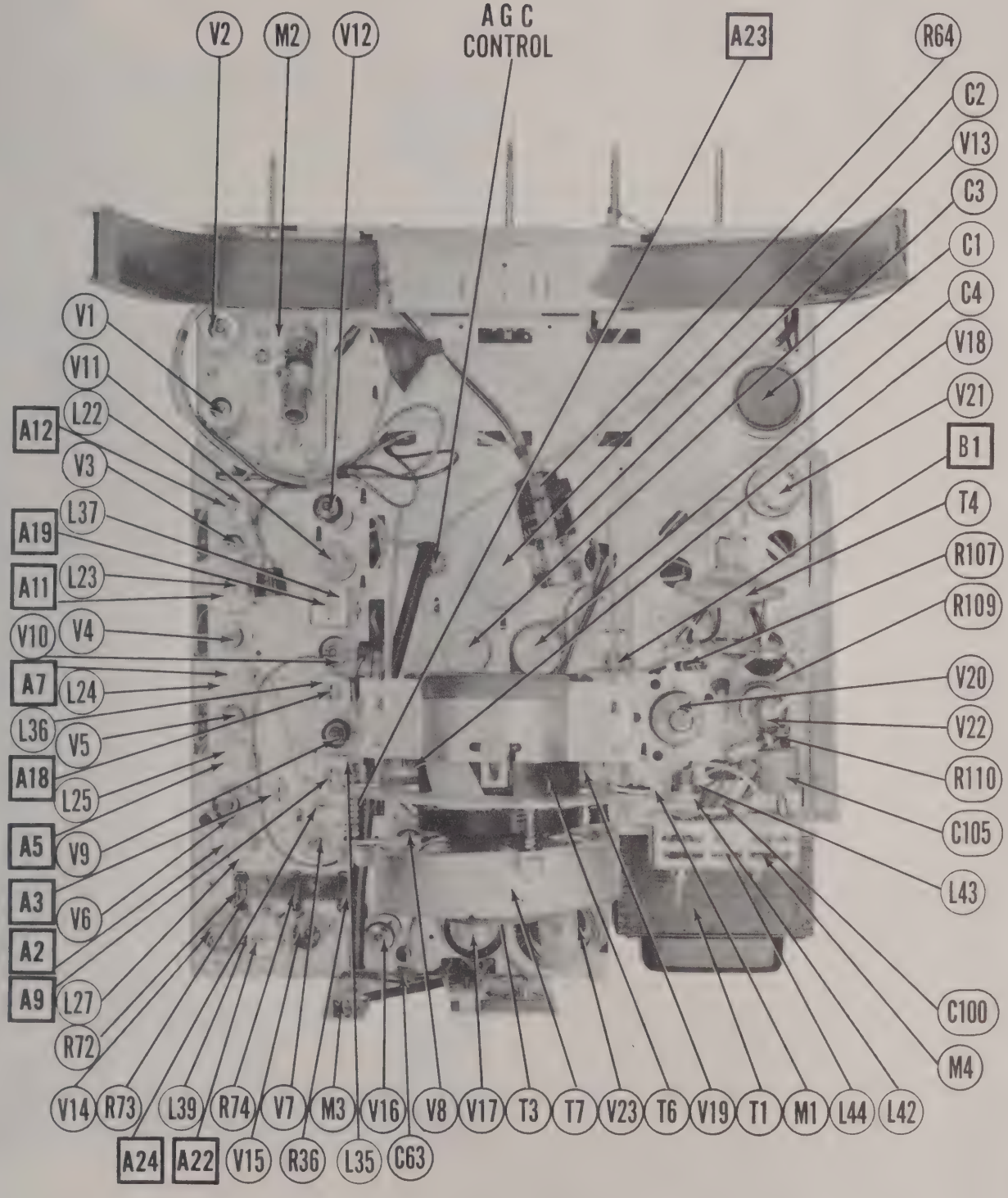
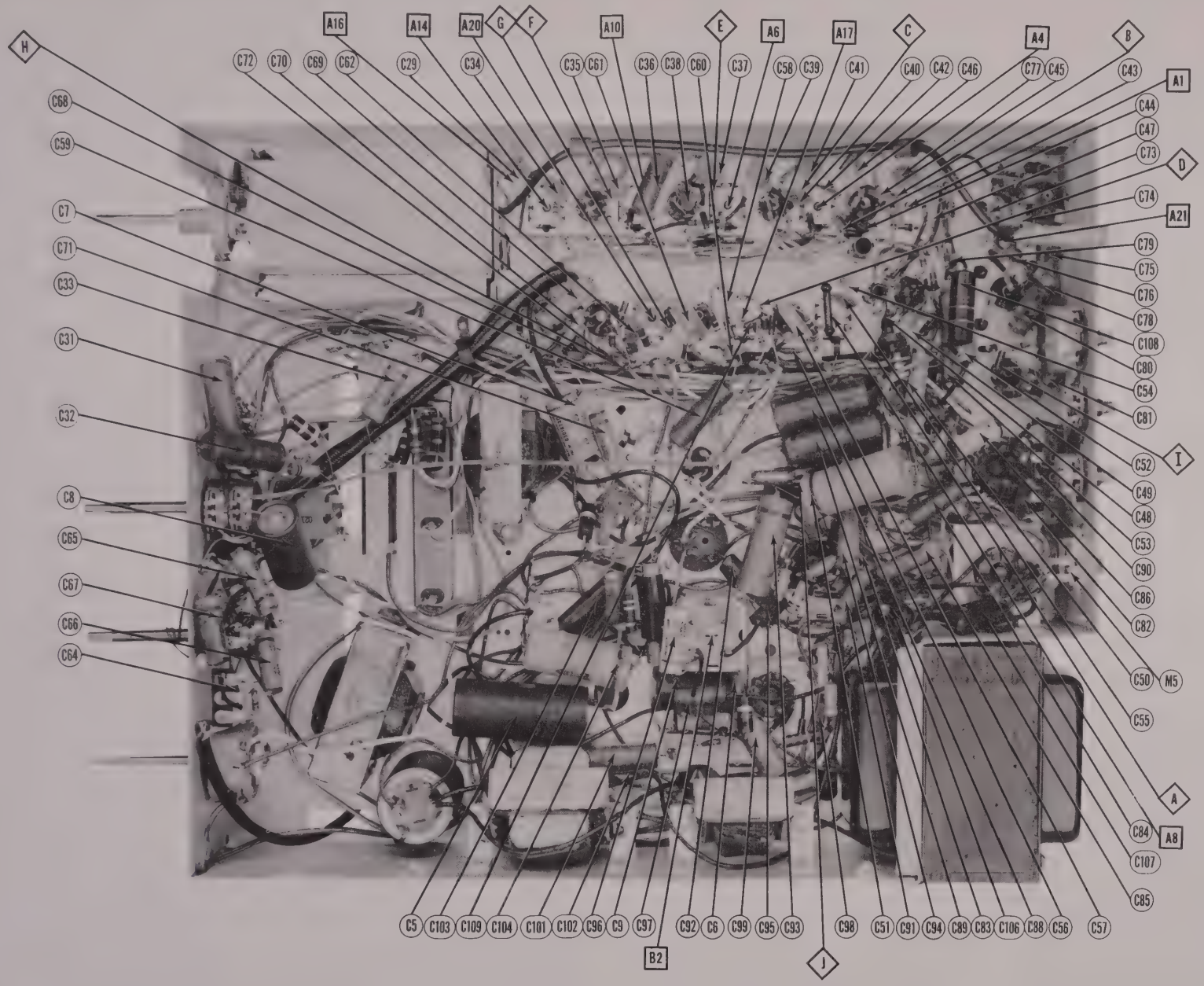
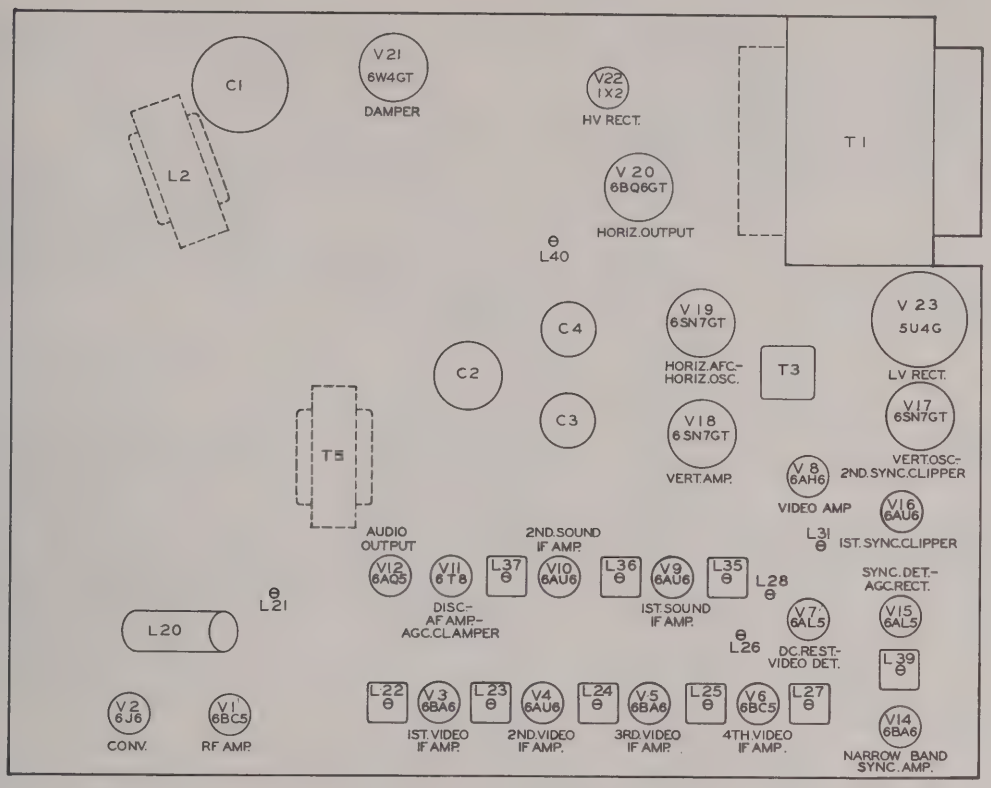


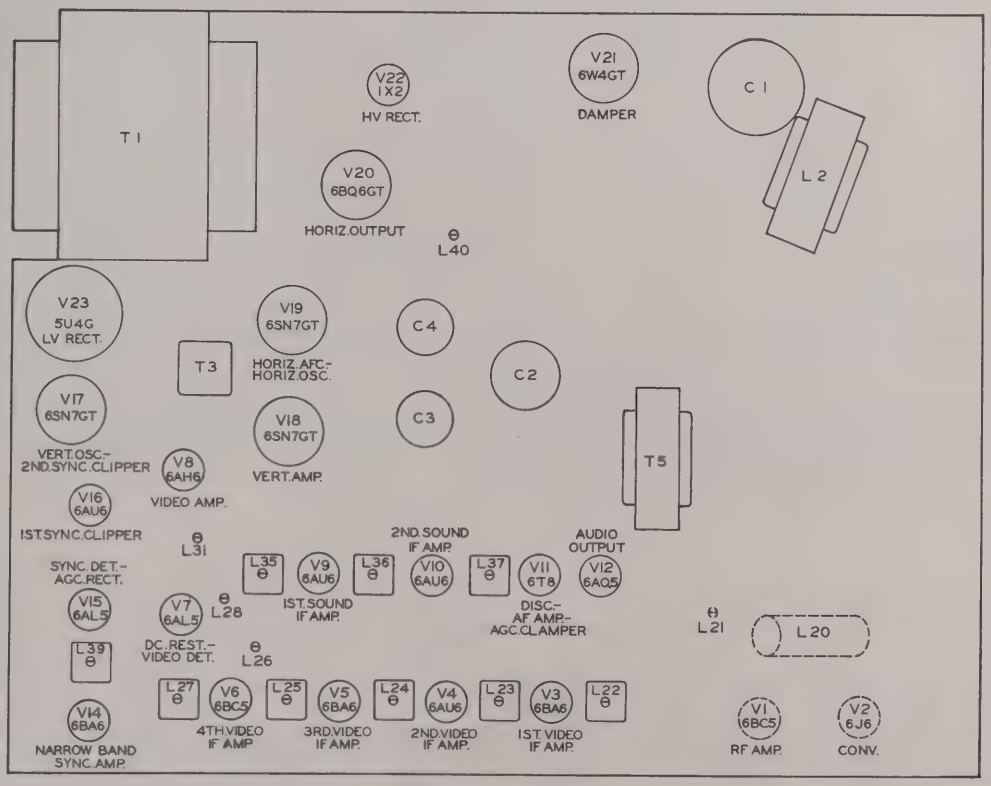
CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



TOP VIEW



BOTTOM VIEW

TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Remove the damper tube (V22) from its socket to disable the high voltage.
If the speaker is not connected, remove the audio output tube (V12) from its socket.

SOUND AND VIDEO IF ALIGNMENT

Remove the converter tube (V2) from its socket and replace it with 6J6 which has pin 1 removed, this will disable the local oscillator and eliminate the possibility of erroneous indications. Clip pin 5 off the dummy converter tube and connect a wire to the remainder of the pin.
This is the method of feeding a signal into the mixer grid.
Short the junction of R37 and R38 to chassis.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.005MFD	High side to pin 1 (grid) of 6BC5 (V6). Low side to chassis.	24MC (10MC SWP)	21.75MC 22.25MC 22.75MC 25.5MC 26.25MC	Any	Vert. amp. to Point A . Low side to chassis.	A1, A2	Adjust for response curve similar to figure1 with markers as shown. If bandwidth is not correct, heat the bare wire coming out of the bottom of the can and pull it out, or push it farther in to adjust bandwidth.
2.	"	High side to pin 1 (grid) of 6BA6 (V5). Low side to chassis.	Not used	21.75MC (400 ∿ AM Mod.)	"	Vert. amp. thru detector probe (figure 2) to Point B .	A3	Adjust for MINIMUM 400 ∿ indication on scope.
3.	"	"	24MC (10MC SWP)	22.25MC 22.75MC 25.5MC 26.25MC	"	"	A4, A5	Adjust for response curve similar to figure 3.
4.	"	High side to pin 1 (grid) of 6AU6 (V4). Low side to chassis.	"	21.75MC 22.25MC 22.75MC 25.5MC 26.25MC	"	Vert. amp. thru detector probe to Point C . Low side to chassis.	A6, A7	Adjust for response curve similar to figure 4. Bandwidth may be adjusted as in step 1.
5.	"	High side to pin 1 (grid) of 6AU6 (V4). Low side to chassis.	21.75MC (2MC SWP)	21.65MC 21.75MC 21.85MC	"	Vert. amp. thru detector to Point D. Low side to chassis,	A8, A9	Adjust for response curve similar to figure 5.
6.	"	High side to pin 1 (grid) of 6BA6 (V3). Low side to chassis.	24MC (10MC SWP)	21.75MC 22.25MC 22.75MC 25.5MC 26.25MC	"	Vert. amp. thru detector to Point E . Low side to chassis.	A10, A11	Adjust for response curve similar to figure 6. Bandwidth may be adjusted as in step 1.
7.	"	High side to pin 5 (grid) of dummy converter tube (V2). Low side to chassis.	Not used	27.25MC (400 ∿ AM Mod.)	"	Vert. amp. thru detector to Point F . Low side to chassis.	A12, A13	Adjust for MINIMUM 400 ∿ indication on scope.
8.	"	"	24MC (10MCSWP)	21.75MC 22.25MC 22.75MC 25.5MC 26.25MC	"	"	A14, A15, A16	Adjust for response curve similar to figure 7.
9.	"	"	21.75MC (1MC SWP)	21.65MC 21.75MC 21.85MC	"	Vert. amp. thru detector to Point G . Low side to chassis.	A17, A18	Adjust for response curve similar to figure 8.
10.	"	"	"	"	"	Vert. amp. to Point H . Low side to chassis.	A19, A20	Adjust for response curve similar to figure 9.
11.	"	"	24MC (4MC SWP)	25.5MC 26.25MC	"	Vert. amp. to Point I . Low side to chassis.	A21, A22	Adjust for response curve similar to figure 10.
12.	"	High side to pin 7 (plate) of 6AL5 (V7). Low side to chassis.	Not used	4.5MC (400 ∿ AM Mod.)	"	Vert. amp. thru detector to Point J . Low side to chassis.	A23	Adjust for MINIMUM 400 ∿ indication on scope.

13. After alignment is completed and set is returned to original operating conditions, tune to channel 5 and examine the picture for fine diagonal lines. If the lines are present, adjust A24 to eliminate , or minimize them.

THE TUNER PORTION OF THIS RECEIVER HAS BEEN PROPERLY ALIGNED AT THE FACTORY AND IS VERY STABLE. ALIGNMENT OF THIS PORTION IS NOT RECOMMENDED IN THE FIELD.

AGC ADJUSTMENT

Turn the set on and tune in a TV station known to be of good quality and free from ghosts.
Turn the AGC control to maximum clockwise and then counter-clockwise until the picture brightens. Then turn the control slowly clockwise to the point where the picture just begins to grow dim.
If evidence of "ringing" is present in the picture adjust A 11 and/or A5 no more than 1/2 turn each to remove the "ringing".
If evidence of "smearing" is present in the picture, adjust A14 no more than 1 turn and/or A1 no more than 1/2 turn to remove the "smearing". If ringing or smearing cannot be removed, the entire alignment should be repeated.

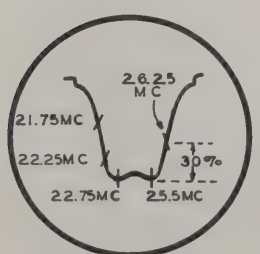


FIG.1

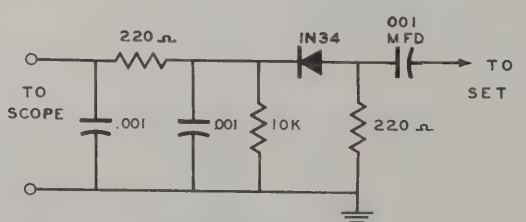


FIG.2

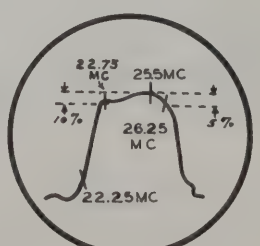


FIG.3

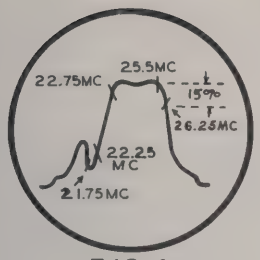


FIG.4

FIG.5

FIG.6

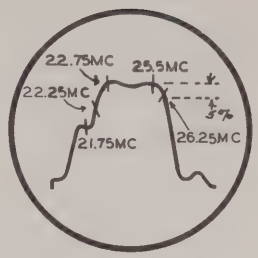


FIG.7

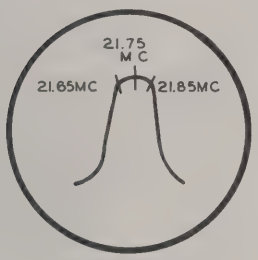


FIG.8

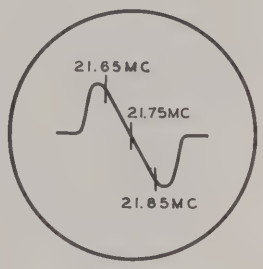


FIG. 9

FIG.10

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.
Turn the horizontal frequency trimmer (B3) fully clockwise, and then 1 1/2 turns counter-clockwise.
Turn the horizontal waveform slug (B2) fully counter-clockwise, and then four turns clockwise.
Turn the horizontal hold control to fully clockwise.
Adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally.
Connect the vertical input lead of an oscilloscope to terminal C of L40. The pattern on the oscilloscope should be similar to figure 11.
Adjust B2 until the broad and narrow peaks of the waveform are of equal height. If necessary adjust the hold control to keep the picture in sync while adjusting B2.
Remove the oscilloscope and turn the hold control to maximum clockwise.
Adjust B1 until the picture is phased as far to the right as possible without instability or "geartooth" effect. Some blanking must appear in the picture.
Check to see that the picture will remain in sync with the hold control at maximum counter-clockwise.
Momentarily remove the signal by turning to another channel and back again. The picture should be out of sync and show 4 or 5 bars sloping downward to the right.
If less than 4 bars are present, turn B3 slightly counter-clockwise. If more than 5 bars are present turn B3 slightly clockwise.
Repeat the check and adjustment of B3 until 4 or 5 bars are present.
Turn the hold control to maximum clockwise, the picture should be out of sync and show one vertical or diagonal sloping bar. If necessary retouch B1 until this condition exists.
Adjust the horizontal drive trimmer (B4) counter-clockwise as far as possible without crowding the right half of the picture.
Turn the horizontal size switch to position 1, (counter-clockwise), and adjust the horizontal size slug B 5 until the picture fills the mask horizontally. If proper width cannot be obtained, turn the size switch to position 2 or 3. When the size switch is turned to position 3 the horizontal size coil is removed from the circuit.
Adjust the horizontal linearity slug (B6) until the picture is symmetrical from left to right. Slight readjustment of B4 may be required to obtain best linearity.

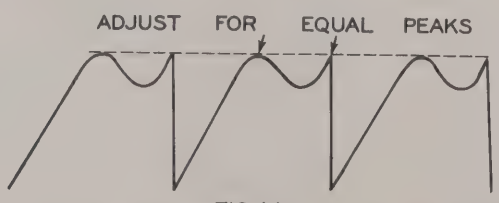


FIG. 11

DISASSEMBLY INSTRUCTIONS

1. Remove seven push-on type control knobs.
2. Remove six wood screws holding rear cover to cabinet. Remove rear cover.
3. Disconnect built-in antenna.
4. Disconnect speaker.
5. Remove four hex nuts from speaker. Remove speaker.
6. Remove five hex head bolts from chassis. Remove chassis.

NOTE: FOR PICTURE TUBE REMOVAL IT IS NECESSARY TO REMOVE THE CHASSIS AS OUTLINED ABOVE.

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BC5	-.4VDC	0V	6.3VAC	0V	95VDC	105VDC	0V		
V 2	6J6	70VDC	95VDC	6.3VAC	0V	-.5VDC	§-1VDC	0V		
V 3	6BA6	-.2VDC	0V	0V	6.3VAC	180VDC	75VDC	.4VDC		
V 4	6AU6	0V	0V	0V	6.3VAC	180VDC	105VDC	1VDC		
V 5	6BA6	-.2VDC	0V	0V	6.3VAC	175VDC	80VDC	.5VDC		
V 6	6BC5	0V	1.3VDC	0V	6.3VAC	185VDC	105VDC	1.3VDC		
V 7	6AL5	0V	-55VDC	0V	6.3VAC	-35VDC	0V	-.3VDC		
V 8	6AH6	-.3VDC	0V	0V	6.3VAC	295VDC	250VDC	5.5VDC		
V 9	6AU6	-.4VDC	0V	0V	6.3VAC	180VDC	105VDC	.3VDC		
V 10	6AU6	-.4VDC	0V	0V	6.3VAC	100VDC	100VDC	.3VDC		
V 11	6T8	-.5VDC	-.5VDC	0V	6.3VAC	0V	-.4VDC	0V	-.6VDC	65VDC
V 12	6AQ5	0V	7.3VDC	6.3VAC	0V	145VDC	155VDC	0V		
V 13	6AL7GT	-.4VDC	6.3VAC	185VDC	.1VDC	0V	0V	0V	-.4VDC	
V 14	5BA6	0V	0V	0V	6.3VAC	180VDC	105VDC	4.3VDC		
V 15	6AL5	▲ 0V ■55VDC	▲ 0V ■55VDC	0V	6.3VAC	▲.6VDC ■55VDC	0V	-.1VDC -.9VDC		
V 16	6AU6	-.2VDC	0V	0V	6.3VAC	15VDC	30VDC	0V		
V 17	6SN7GT	-60VDC -115VDC	170VDC -10VDC	-60VDC	-60VDC	25VDC	-60VDC	6.3VAC	0V	
V 18	6SN7GT	-35VDC -55VDC	420VDC 320VDC	-45VDC -35VDC	-35VDC -55VDC	420VDC 320VDC	-45VDC -35VDC	0V	6.3VAC	
V 19	6SN7GT	-65VDC	100VDC	-70VDC	-135VDC	250VDC	-60VDC	6.3VAC	0V	
V 20	6BQ6GT	0V	0V	0V	55VDC	-85VDC	-85VDC	6.3VAC	-55VDC	TOP CAP *
V 21	6W4GT	0V	0V	485VDC	0V	310VDC	0V	485VDC	485VDC	
V 22	1X2	DO NOT MEASURE								
V 23	5U4G	0V	320VDC	0V	320VAC	0V	320VAC	0V	320VDC	
V 24	17AP4	0V	-35VDC	PIN 10 305VDC	PIN 11 50VDC	PIN 12 6.3VAC				

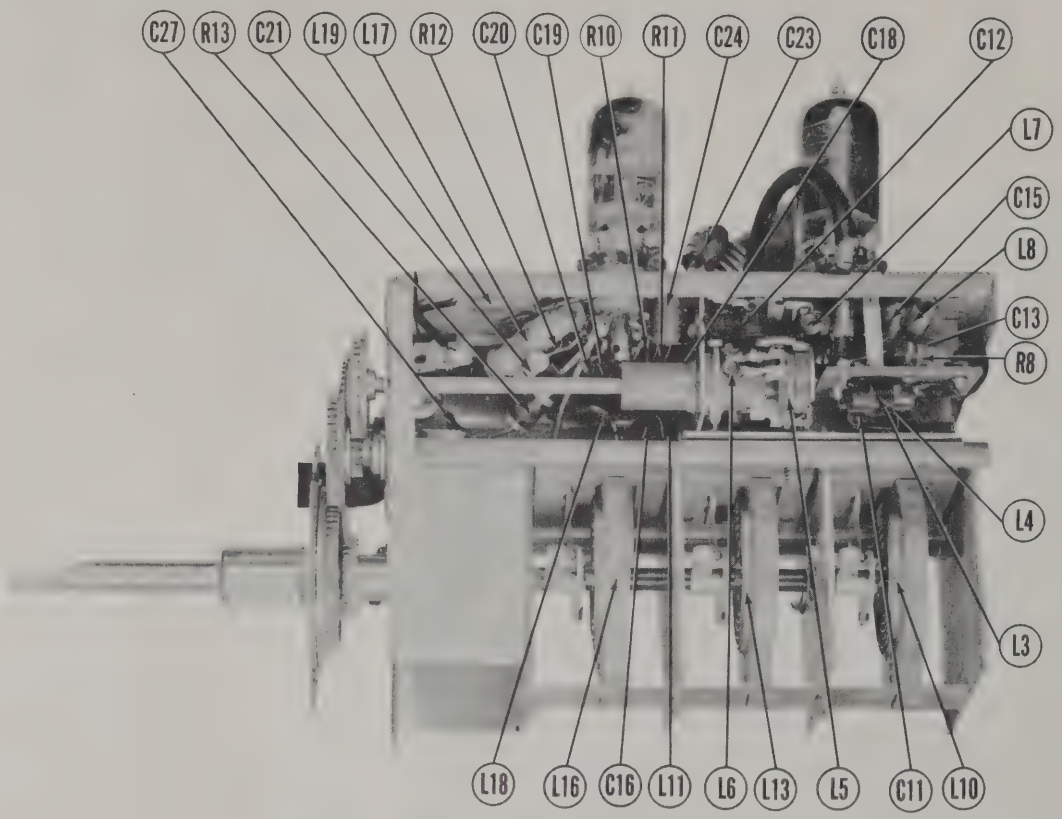
ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED
TV-PHONO SWITCH IN TV POSITION
§ TAKEN WITH VACUUM TUBE VOLTMETER
▲ LOCAL-DISTANT SWITCH IN LOCAL POSITION
■ LOCAL - DISTANT SWITCH IN DISTANT POSITION
* DO NOT MEASURE

RESISTANCE READINGS

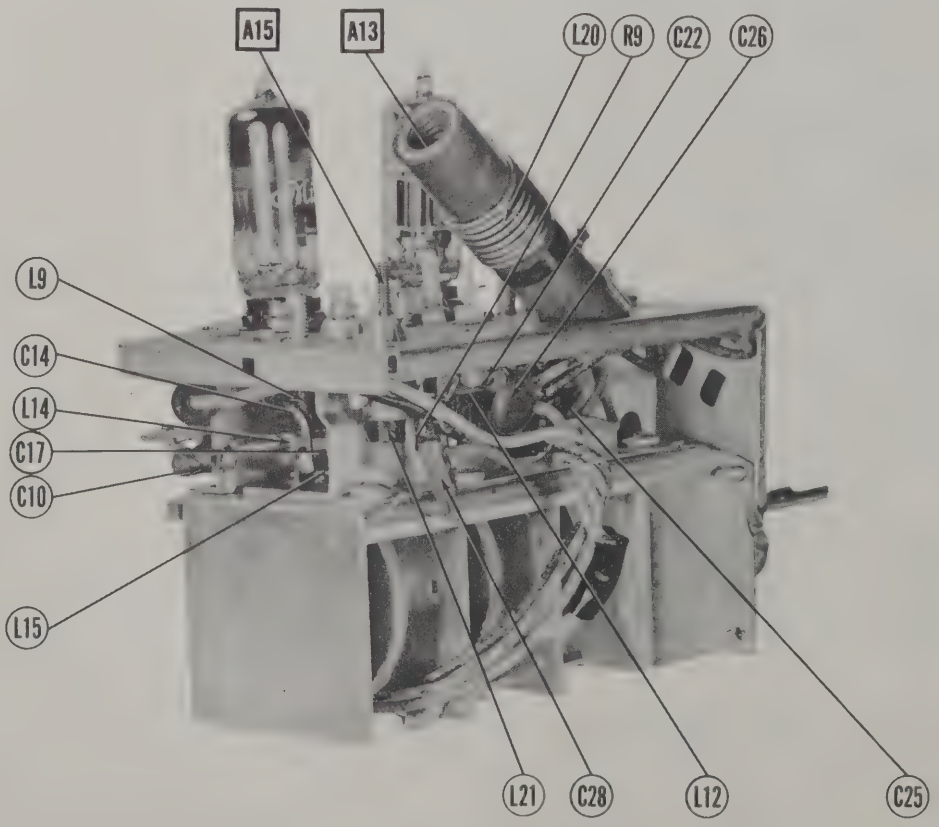
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BC5	▲1.6Meg ■ 3Meg	0Ω	.1Ω	0Ω	†4.8KΩ	† .28KΩ	0Ω		
V 2	6J6	†9.5KΩ	†4.8KΩ	.1Ω	0Ω	335KΩ	12KΩ	0Ω		
V 3	6BA6	▲1.3Meg ■3.5Meg	0Ω	0Ω	.1Ω	†1.9KΩ	†12KΩ	39Ω		
V 4	6AU6	.7Ω	0Ω	0Ω	.1Ω	†1.9KΩ	†3.3KΩ	120Ω		
V 5	6BA6	▲1.3Meg ■3.5Meg	0Ω	0Ω	.1Ω	†3.4KΩ	†12KΩ	68Ω		
V 6	6BC5	6.8KΩ	.220Ω	0Ω	.1Ω	†1.9KΩ	†3.3KΩ	220Ω		
V 7	6AL5	.5Ω	100KΩ	0Ω	.1Ω	1Meg	0Ω	3.9KΩ		
V 8	6AH6	3.9KΩ	0Ω	0Ω	.1Ω	†4KΩ	†68KΩ	1KΩ		
V 9	6AU6	1.2Meg	0Ω	0Ω	.1Ω	†1.9KΩ	†3.3KΩ	39Ω		
V 10	6AU6	220KΩ	0Ω	0Ω	.1Ω	†3.3KΩ	†3.3KΩ	39Ω		
V 11	6T8	100KΩ	100KΩ	200KΩ	.1Ω	0Ω	▲1.6Meg ■3Meg	0Ω	10Meg	†330KΩ
V 12	6AQ5	470KΩ	270Ω	.1Ω	0Ω	†2.4KΩ	†2.1KΩ	470KΩ		
V 13	6AL7GT	3.3KΩ	.1Ω	†900Ω	1.3Meg	0Ω	0Ω	0Ω	3.3KΩ	
V 14	6BA6	2.8Ω	0Ω	0Ω	.1Ω	†1.9KΩ	†3.3KΩ	540Ω		
V 15	6AL5	▲ 1KΩ ■12KΩ	▲ 1KΩ ■ 12KΩ	0Ω	.1Ω	▲19KΩ ■30KΩ	0Ω	▲800KΩ ■2.5Meg		
V 16	6AU6	1Meg	0Ω	0Ω	.1Ω	†27KΩ	†5.6KΩ	0Ω		
V 17	6SN7GT	390KΩ 1.4Meg	#825KΩ #4.8Meg	585Ω	1Meg	†7.7KΩ	425Ω	.1Ω	0Ω	
V 18	6SN7GT	2.2Meg	#5.7KΩ	2.4KΩ 1KΩ	2.2Meg	#5.7KΩ	2.4KΩ 1KΩ	0Ω	.1Ω	
V 19	6SN7GT	800KΩ	#120KΩ	300KΩ	250KΩ	#60KΩ	425Ω	.1Ω	0Ω	
V 20	6BQ6GT	Inf.	0Ω	Inf.	†4.5KΩ	560KΩ	560KΩ	.1Ω	525Ω	TOP CAP #98Ω
V 21	6W4GT	Inf.	Inf.	70KΩ	Inf.	†75Ω	Inf.	#.3Ω	#0Ω	
V 22	1X2	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP #240Ω
V 23	5U4G	Inf.	8KΩ	Inf.	460Ω	Inf.	460Ω	Inf.	8KΩ	
V 24	17AP4	0Ω	1Meg	PIN 10 †68Ω	PIN 11 80KΩ	PIN 12 .1Ω				

ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED
TV-PHONO SWITCH IN TV POSITION
▲ LOCAL - DISTANT SWITCH IN LOCAL POSITION
■ LOCAL - DISTANT SWITCH IN DISTANT POSITION
† MEASURED FROM PIN 8 OF V23
# MEASURED FROM PIN 3 OF V21

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: DUMONT PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amplifier	25002020	6BC5	7BD	
V2	Converter	25000190	6J6	7BF	
V3	1st Video IF Amp.	2500240	6BA6	7BK	
V4	2nd Video IF Amp.	25000050	6AU6	7BK	
V5	3rd Video IF Amp.	2500240	6BA6	7BK	
V6	4th Video IF Amp.	25002020	6BC5	7BD	
V7	Video Detector - DC Restorer	25000020	6AL5	6BT	
V8	Video Amplifier	25001510	6AH6	7BK	
V9	1st Sound IF Amp.	25000050	6AU6	7BK	
V10	2nd Sound IF Amp.	25000050	6AU6	7BK	
V11	Discriminator - AF Amplifier - AGC Clamp	25001820	6T8	9E	
V12	Audio Output	25000340	6AQ5	7BZ	
V13	Tuning Indicator	25000200	6AL7GT	6BT	
V14	Narrow Band Sync. Amplifier	2500240	6BA6	7BK	
V15	Sync. Detector - AGC Rectifier	25000020	6AL5	6BT	
V16	1st Sync. Clipper	25000050	6AU6	7BK	
V17	2nd Sync. Clipper - Vert. Oscillator	25000110	6SN7GT	8BD	
V18	Vert. Amplifier	25000110	6SN7GT	8BD	
V19	Horiz. Oscillator - Horiz. AFC	25000110	6SN7GT	8BD	
V20	Horiz. Output	25001830	6BQ6GT	6AM	
V21	Damper	25000830	6W4GT	4CG	
V22	H. V. Rectifier	25001810	1X2	7CB	
V23	L. V. Rectifier	2500060	5U4G	5T	
V24	Picture Tube	25002610	17AP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: DUMONT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	450	03014130	AFH88J		UPT4445		TVL-2764	● Filter
B	40	450							▲ Filter
C2A	30	450	03018450	AFH8422J		UPT411145		TVL-4766	● Filter
B	10	450							■ V. Amp. Screen
C	10	450							▲ Output Decoupling
D	10	250							Decoupling
C3A	10	450	03018440	AF2J2H2F		UP11145		TVL-3776	■ Filter
B	10	350							▲ Filter
C	10	250							Filter
C4A	30	450	03019400	AFH6J5B		UPT2145V5		TVL-1720	■ Decoupling
B	20	50						TVA-1306	▲ Vert. Output Cathode
C5	30	450	03019570	AFH6J		UP3045		TVL-1720	Decoupling
C6	50	150	03018430	PRS250/40		BR5015A		TVA-1414	Filter
C7	10	25	03016730	PRS25/10		BR102A		TVA-1204	Output Cathode
C8	10	450	03019410	PRS500/10		BR1045A		TVA-1705	Decoupling
C9	4	25	03019290	PRS150/4		BR550		TVA-1203	Horiz. Output Cathode
C10	100		03016700						RF Coupling
C11	20		03015790						Fixed Trimmer
C12	15		03012180						Fixed Trimmer
C13	470		03016480						AGC Filter
C14	470		03016480						RF Amp. Screen
C15	470		03016480						RF Amp. Fil.
C16	100		03016700						Fixed Trimmer
C17	125		03018020						Fixed Trimmer
C18	100		03016700						RF Coupling
C19	1		03012150						Osc. Coupling
C20	5		03014730						Osc. Grid Cap
C21	2.5		03013690						Fixed Trimmer
C22	10		03015250						Fixed Trimmer
C23	39								Fixed Trimmer
C24	470		03016480						Conv. Filament
C25	470		03016480						Filament Bypass
C26	5000		03015610						RF Bypass
C27	470		03016480						RF Bypass
C28	120	500	03055700						IF Coupling
C29	8-50		03017500				557-N750-8-50		Fixed Trimmer
C30	20		0305500	8I20NPO	TCZ-20		NPOK-20		Fixed Trimmer *
C31	.1	400	03014770	P488-1	DF-104	PTE4P1		4TM-P1	RF Bypass
C32	.1	400	03014770	P488-1	DF-104	PTE4P1		4TM-P1	RF Bypass
C33	.05	200	03000950	P288-05	DF-503	PTE4S5		2TM-S5	AGC Filter
C34	5000		03015610	BPD-005	DD-502	1D5D5	811-005	29C1	AGC Filter
C35A	4000		03017790	BPD-2X004	DD-2-502	1D5D4	822-2X004	36C2	1st V. IF Plate Dec.
B	4000					1D5D4			1st V. IF Screen
C36	.05	200	03000950	P288-05	DF-503	PTE4S5		2TM-S5	AGC Filter
C37A	4000		03017790	BPD-2X004	DD-2-502	1D5D4	822-2X004	36C2	2nd V. IF Plate Dec.
B						1D5D4			2nd V. IF Screen
C38	5000		03015610	BPD-005	DD-502	1D5D5	811-005	29C1	2nd V. IF Cathode
C39	5000		03015610	BPD-005	DD-502	1D5D5	811-005	29C1	AGC Filter
C40A	4000		03017790	BPD-2X004	DD-2-502	1D5D4	822-2X004	36C2	3rd V. IF Plate Dec.
B	4000					1D5D4			3rd V. IF Screen
C41	5000		03015610	BPD-005	DD-502	1D5D5	811-005	29C1	3rd V. IF Fil.
C42	5000		03015610	BPD-005	DD-502	1D5D5	811-005	29C1	IF Coupling
C43	20	500	03055000	8I20NPO	TCZ-20	5R5Q2	NPOK-20	MS-42	Fixed Trimmer
C44	100	500	03055170	1469-0001	TCZ-100	5R5T1	NPOM-100	MS-31	Fixed Trimmer
C45A	4000		03017790	BPD-2X004	DD-2-502	1D5D4	822-2X004	36C2	4th V. IF Plate Dec.
B	4000					1D5D4			4th V. IF Screen
C46	5000		03015610	BPD-005	DD-502	1D5D5	811-005	29C1	4th V. IF Cathode
C47	47	500	03012730	1468-00004	D6-470	5W5Q5	GP1K-47	1FM-45	IF Coupling
C48	5	500	03055500	1469-000005	TCZ-4.7	5R5V5	GP1K-5	MS-55	Fixed Trimmer
C49	47		03012730	8I47NPO	TCZ-47		NPOM-47	29C14	Fixed Trimmer
C50	.005	600	03001570	P888-005	D6-502	PTE6D5	811-005	6TM-D5	V. Amp. Cathode
C51	.5	400	03014260	484-5		GT4P5		4TM-P5	Video Coupling
C52	.05	200	03015370	P288-05	DF-503	PTE4S5		2TM-S5	Video Coupling

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (CONT.)

ITEM No	RATING CAP	RATING VOLT	DUMONT Part No.	AEROVOX Part No.	CENTRALAB Part No.	CORNELL DUBILIER Part No.	ERIE Part No.	SPRAGUE Part No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C53	.05	200	03000950	P288-05	DF-503	PTE4S5		2TM-S5	DC Rest. Cathode
C54	2 ①		03000898						S. IF Coupling
C55	5000		03005810	BPD-005	DD-502	1D5D5	811-005	29C1	AVC Filter
C56	5000		03015810	BPD-005	DD-502	1D5D5	811-005	29C1	1st S. IF Plate Dec.
C57	1500	500	03033220	1467-0015	D6-152	1W5D15	GP2L-0015	1FM-215	1st S. IF Screen
C58	10	500	03020000	1468-00001	D6-100	5W5Q1	GP1K-10	MS-41	S. IF Coupling
C59	.05	200	03000950	P288-05	DF-503	PTE4S5		2TM-S5	AVC Filter
C60	5000		03015810	BPD-005	DD-502	1D5D5	811-005	29C1	AVC Filter
C61	1500	500	03033220	1467-0015	D6-152	1W5D15	GP2L-0015	1FM-215	Limiter Dec.
C62	47	500	03020080	1468-00005	D6-470	5W5Q5	GP1K-47	1FM-45	RF Bypass
C63	510	500	03055850	1468-0006	D6-501	5W5T5	GP2K-500	1FM-55	De-emphasis
C64	.01	200	03014900	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Audio Coupling
C65	.01	400	03001450	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Audio Coupling
C66	.02	200	03018470	P488-03	DF-203	PTE4S2		2TM-S2	Tone Comp.
C67	.05	200	03000950	P288-05	DF-503	PTE4S5		2TM-S5	Ind. Filter
C68	5000		03015810	BPD-005	DD-502	1D5D5	811-005	29C1	AGC Filter
C69	.01	800	03012560	P688-01	D6-103	PTE8S1	821-01	6TM-S1	Audio Coupling
C70	27	500	03020360	1468-00025	D6-270	5W5Q25	GP1K-27	MS-425	AF Amp. Plate
C71	.005	600	03008570	P688-005	D6-503	PTE8D5	811-005	6TM-D5	Output Plate
C72	5000		03015810	BPD-005	DD-502	1D5D5	811-005	29C1	Discr. AF Amp. Fil. *
C73	5000		03015810	BPD-005	DD-502	1D5D5	811-005	29C1	Sync. Amp. Plate Dec.
C74	820	500	03020560	1468-001	D6-102	1W5T8	GP2L-001	MS-38	Sync. Amp. Screen
C75	.05	200	03000950	P288-05	DF-503	PTE4S5		2TM-S5	Sync. Amp. Cathode
C76	5000		03015810	BPD-005	DD-502	1D5D5	811-005	29C1	Decoupling
C77	5000		03015810	BPD-005	DD-502	1D5D5	811-005	29C1	RF Bypass
C78	.05	200	03000950	P288-05	DF-503	PTE4S5		2TM-S5	AGC Filter
C79	1000		03015810	81D00	D6-102	1W5D1	GP2L-001	19C1	AGC Filter
C80	33	500	03020060	S133	D6-330	5W5Q3	GP1K-33	19C24	Sync. Det. Bypass
C81	.1	200	03014780	P288-1	DF-104	PTE4P1		2TM-P1	Sync. Coupling
C82	.1	400	03014770	P488-1	DF-104	PTE4P1		4TM-P1	Sync. Coupling
C83	.002	600	03014430	P688-002	D6-202	PTE6D2	GP2M-002	6TM-D2	Integrator Net
C84	.005	400	03018640	P688-005	D6-502	PTE6D5	811-005	6TM-D5	Integrator Net
C85	.01	200	03018470	P488-02	DF-203	PTE4S2		2TM-S2	Integrator Net
C86	.01	600	03010540	P688-01	D6-103	PTE6S1	821-01	6TM-S1	Vert. Osc. Grid
C87	.25	400		P488-25		GT4P25		4TM-P25	Vert. Osc. Grid *
C88	.1	600	03010340	P688-1		PTE6P1		6TM-P1	Vert. Discharge
C89	.1	600	03014820	P688-1	DF-104	PTE6P1		6TM-P1	Vert. Sweep Coupling
C90	180	500	03021430	S1480	D6-181	5R5T3	GP2K-180	MS-32	Horiz. Sync. Coupling
C91	.002	600	03014430	P688-002	D6-202	PTE6D2	GP2M-002	6TM-D2	Horiz. Sync. Coupling
C92	.02	400	03100450	P488-02	DF-203	PTE4S2		4TM-S2	AFC Filter
C93	.2	400	03100470	P488-22		GT4P2		4TM-P22	AFC Filter
C94	.05	400	03019640	P488-05	DF-503	PTE4S5		4TM-S5	Hor. AFC Plate
C95	270	500	03021470	1469-00025	D6-271	5R5T25	GP2K-270	MS-325	Hor. Osc. Grid
C96	.01	600	03010540	P688-01		PTE6S1		6TM-S1	Fixed Trimmer
C97	1000	500	03033180	1464-001		1R5D1		MS-21	Horiz. Discharge
C98	270	500	03020170	1468-00025	D6-271	5W5T25	GP2K-270	1FM-325	Horiz. Sweep Coupling
C99	.05	600	03015370	P688-05	DF-503	PTE6S5		6TM-S5	Horiz. Output Screen
C100	2700	1500	03100900						Fixed Trimmer
C101	.1	200	03100350	P288-1		PTE4P1		2TM-P1	Damper Filter
C102	.03	200	03100340	P688-03		PTE6S3		6TM-S3	Damper Filter
C103	.02	600	03010550	P688-02	DF-203	PTE6S2		6TM-S2	Horiz. Sweep Coupling
C104	.5	400	03014260	484-5		GT4P5		4TM-P5	Horiz. Sweep Coupling
C105	500	20000	03014880	HV20B	TV1-502				H. V. Filter
C106	.02	800	03018570	P688-02	DF-203	PTE8S2		6TM-S2	Line Filter
C107	.02	600	03018570	P688-02	DF-203	PTE6S2		6TM-S2	Line Filter
C108	.1	400	03014770	P488-1	DF-104	PTE4P1		4TM-P1	Video Coupling *
C109	1				TCZ-1				S. IF Coupling *

* Not used in all models

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	DUMONT Part No.	IRC Part No.	CLAROSTAT Part No.	CENTRALAB Part No.	INSTALLATION NOTES
R1	5000Ω	25	01028310				Focus Control - Wire Wound
R2A	50kΩ		01028210	Concentrikit	RTV-219	SBB-560-S	Horizontal Hold Control - Front
B	1Meg	2		B11-137X ④			Volume Control - Tapped ② 300KΩ - Rear
C	Shaft-End			E-202 ④			Attach Per Instructions in "Concentrikit"
D	Switch			76-1 ④			Attach Per Instructions in "Concentrikit"
R3A	100kΩ			Concentrikit			Brightness Control - Front
B	250kΩ	1	01027020	B11-128 ④		SBB-599	Contrast Control - Rear
C	Shaft-End			E-202 ④			Attach Per Instructions in "Concentrikit"
R4	5000Ω	2	01024820		RTV-22	VK-130	Vertical Linearity Control - Wire Wound
R5A	Meg	1	01007520	Q11-137	AG-81-S	AN-69	Vertical Hold Control
B	Shaft		Not req.	Not req.	FKS-1/4	AK-1	Attach to R5A Per Instructions
R6A	1Meg	1	01008570	Q11-141	AG-85-S	AN-86	Vertical Size Control
B	Shaft		Not req.	Not req.	FKS-1/4	AK-1	Attach to R6A Per Instructions
R7A	250kΩ		01007540	Q11-120	AG-40-S	AN-26	AGC Control
B	Shaft		Not req.	Not req.	FKS-1/4	AK-1	Attach to R7A Per Instructions

④ Additional parts to be used with "Concentrikit".

RESISTORS

ITEM No	RATING RESISTANCE	RATING WATTS	DUMONT Part No.	IRC Part No.	IDENTIFICATION CODES ALL RESISTORS ± 20% UNLESS OTHERWISE SPECIFIED
R8	82kΩ ±2%	½	02031900		RF Amp. Grid
R9	47000Ω ±2%	½	02033850	BTA-4700	RF Amp. Screen
R10	4700Ω	½	02031850	BTS-4700	Mixer Grid
R11	330Ω ±5%	½	02032070		Mixer Grid
R12	82kΩ ±2%	½	02031900		Osc. Grid
R13	4700Ω ±2%	½	02031850	BTA-4700	Osc. Plate
R14	10Meg ±2%	½	02032660	BTS-10Meg	AGC Network
R15	1Meg ±2%	½	02032600	BTS-1Meg	AGC Network
R16	10kΩ ±2%	½	02032480	BTS-10K	AGC Network
R17	22kΩ ±2%	½		BTA-22K	Decoupling
R18	3900Ω 10%	2	02037840	BTB-3900	Decoupling
R19	2700Ω 5%	½	02030660	BTS-2700-5%	1st Video IF Amp. Grid - See Note 1
R20	39Ω 10%	½	02031600		1st Video IF Amp. Cathode
R21	10kΩ	½	02032480	BTS-10K	1st Video IF Amp. Screen
R22	1000Ω	½	02032420	BTS-1000	1st Video IF Amp. Plate Decoupling

RESISTORS (CONT.)

ITEM No.	RATING RESISTANCE	RATING WATTS	DUMONT Part No.	IRC Part No.	IDENTIFICATION CODES
R23	120Ω 10%	½	02031660		2nd Video IF Amp. Cathode
R24	1000Ω	½	02032420	BTS-1000	2nd Video IF Amp. Screen
R25	1000Ω 10%	½	02032420	BTS-1000	2nd Video IF Amp. Plate Decoupling
R26	10kΩ	½	02032480	BTS-10K	AGC Network
R27	68Ω	½	02031630		3rd Video IF Amp. Cathode
R28	10kΩ	½	02032480	BTS-10K	3rd Video IF Amp. Screen
R29	1000Ω	½	02032420	BTS-1000	3rd Video IF Amp. Plate Decoupling
R30	68000Ω 5%	½	02030680		4th Video IF Amp. Grid
R31	220Ω	½	02031690		4th Video IF Amp. Cathode
R32	1000Ω	½	02032420	BTS-1000	4th Video IF Amp. Screen
R33	1000Ω	½	02032420	BTS-1000	4th Video IF Amp. Plate Decoupling
R34	68kΩ 10%	½	02031990		5th Video IF Trans Shunt
R35	39000Ω 10%	½	02030620	BTS-3900	Video Det. Diode Load
R36	22kΩ	½	02032500	BTS-22K	AGC Network
R37	680kΩ	½	02032590	BTS-680K	AGC Network
R38	1Meg	½	02032600	BTS-1Meg	AGC Network
R39	270kΩ 10%	½	02032060	BTS-270K	AGC Network
R40	2.2Meg	½	02032820	BTS-2.2Meg	AGC Network
R41	22Ω	½	02031570		Video Amp. Cathode
R42	68kΩ 10%	1	02033920	BTA-68K	Video Amp. Screen
R43	39000Ω 10%	2	02036620	BTB-3900	Video Amp. Plate
R44	8200Ω 10%	2	02030720	BTS-8200	Video Peaking Coil Shunt - See Note 2
R45	220kΩ 10%	1	02035560	BTA-220K	Voltage Divider
R46	100kΩ	½	02032540	BTS-100K	DC Restorer Diode Load
R47	1Meg	½	02032600	BTS-1Meg	Picture Tube Grid
R48	100kΩ	½	02032540	BTS-100K	Picture Tube Cathode
R49	47kΩ 10%	½	02032540		1st Sound IF Trans. Shunt
R50	10kΩ 10%	½	02032480	BTS-10K	AVC Network
R51	39Ω 10%	½	02031600		1st Sound IF Amp. Cathode
R52	1000Ω 10%	½	02032420	BTS-1000	1st Sound IF Amp. Screen
R53	1000Ω 10%	½	02032420	BTS-1000	1st Sound IF Amp. Plate Decoupling
R54	100kΩ 10%	½	02032540		2nd Sound IF Transformer Shunt
R55	1Meg 10%	½	02032600	BTS-1Meg	AVC Network
R56	220kΩ 10%	½	02032060		2nd Sound IF Amp. Grid - See Note 3
R57	39Ω 10%	½	02031600		2nd Sound IF Amp. Cathode
R58	1000Ω 10%	½	02032420	BTS-1000	2nd Sound IF Amp. Decoupling
R59	100kΩ 10%	½	02032540	BTS-100K	Disc. Diode Load
R60	100kΩ 10%	½	02032540	BTS-100K	Disc. Diode Load
R61	100kΩ 10%	½	02032540	BTS-100K	De-emphasis
R62	22kΩ 10%	½	02032500	BTS-22K	Tone Compensation
R63	1Meg 10%	½	02032600	BTS-1Meg	Tuning Ind. Network
R64	3300Ω 10%	½	02032450	BTS-3300	Tuning Ind. Network
R65	10Meg 10%	½	02032660	BTS-10Meg	AF Amp. Grid
R66	330kΩ 10%	½	02032070	BTS-330K	AF Amp. Plate
R67	470kΩ 10%	½	02032580	BTS-470K	Output Grid
R68	270Ω 10%	½	02031700	BTS-270	Output Cathode
R69	12000Ω 10%	2	02037770	BTB-12000	Output Decoupling - See Note 4
R70	68Ω	½	02031630	BW-½-68	Sync. Amp. Cathode
R71	470Ω 10%	1	02031700	BTA-470	Sync. Amp. Cathode - See Note 5
R72	1000Ω	½	02032420	BTS-1000	Sync. Amp. Screen
R73	1000Ω	½	02032420	BTS-1000	Sync. Amp. Plate Decoupling
R74	1000Ω 10%	½	02032420	BTS-1000	AGC Network
R75	15kΩ	½	02032490	BTS-15K	AGC Network
R76	18kΩ 10%	½	02031920	BTS-18K	Sync. Det. Diode Load
R77	10kΩ	½	02032480	BTS-10K	Isolation
R78	1Meg	½	02032600	BTS-1Meg	Sync. Sep. Grid
R79	22kΩ	½	02032500	BTS-22K	Sync. Sep. Plate
R80	1Meg	½	02032600	BTS-1Meg	Sync. Clipper Grid
R81	3300Ω	½	02032450	BTS-3300	Sync. Clipper Plate
R82	10kΩ	½	02032480	BTS-10K	Integrator
R83	10kΩ	½	02032480	BTS-10K	Integrator
R84	10kΩ	½	02032480	BTS-10K	Integrator
R85	390kΩ	½	02032080	BTS-390K	Vertical Osc. Grid
R86	820kΩ	½	02031190	BTS-820K	Vertical Osc. Plate - See Note 6
R87	5600Ω 10%	½	02030650	BTS-5600	Vertical Peaking - See Note 7
R88	2.2Meg	½	02032620	BTS-2.2Meg	Vertical Amp. Grid
R89	560Ω 10%	1	02034740	BTA-560	Vertical Amp. Cathode
R90	5000Ω 10%	5	02112340	1 3/4A-5000	Decoupling
R91	2.7Meg 5%	1	02034300	BTA-2.7Meg-5%	Voltage Divider
R92	1Meg	½	02032600	BTS-1Meg	Horizontal Osc. Grid
R93	150kΩ 10%	½	02031000	BTS-150K	Horizontal Osc. Cathode
R94	100kΩ 5%	1"	02033960	BTA-100K-5%	Horizontal Osc. Grid
R95	150kΩ 5%	1	02031000	BTA-150K-5%	Voltage Divider
R96	68kΩ	½	02031990	BTS-68K	Voltage Divider
R97	100kΩ	½	02032540	BTS-100K	Horizontal Osc. Plate
R98	8200Ω 5%	½	02030700	BTS-8200-5%	Horizontal Osc. Coil Shunt
R99	47kΩ 10%	1	02034970	BTA-47K	Horizontal Osc. Plate
R100	8200Ω 5%	½	02030700	BTS-8200-5%	Horizontal AFC Filter
R101	150kΩ 10%	½	02031000	BTS-150K	Horizontal Feedback
R102	15kΩ 10%	1	02034910	BTA-15K	Decoupling
R103	100Ω	½	02032360	BTS-100	Parasitic Suppressor
R104	560kΩ 10%	½	02032080	BTS-560K	Horizontal Output Grid - See Note 8
R105	100Ω 10%	2	02037650	BW-2-100	Horizontal Output Cathode
R106	100Ω	½	02032360	BTS-100	Parasitic Suppressor
R107	68Ω 10%	1			Current Limiting
R108	470Ω	1	02034730	BTA-470	Damping Coil Shunt
R109	1.5Ω 10%	½	02100690		H.V. Rectifier Filament
R110	1.8Meg 10%	2	02038170	BTB-1.8Meg	H.V. Filter - See Note 9
R111	427Ω	10	02120210		Voltage Divider
R112	2400Ω 5%	2	02036570		Voltage Divider
R113	3300Ω 5%	2	02036600	BTB-3300-5%	Voltage Divider
R114	3300Ω 5%	2	02036600	BTB-3300-5%	Voltage Divider
R115A	2140Ω	10	02120300		Voltage Divider
B	1480Ω				Voltage Divider
R116A	215Ω	25	02119910		Voltage Divider
B	910Ω				Focus Coil Shunt
R117	130kΩ 10%	1	02035010	BTA-120K	Isolation - See Note 10

Note 1. Some models use 5600Ω resistor in this application.
Note 2. Some models use 10KΩ resistor in this application.
Note 3. Some models use 270KΩ resistor in this application.
Note 4. Some models use 1000Ω resistor in this application.
Note 5. Some models use 2700 resistor in this application.
Note 6. Some models use 910KΩ resistor in this application.
Note 7. Some models use 5100Ω resistor in this application.
Note 8. Some models use 470KΩ resistor in this application.
Note 9. Some models use 2.2Meg resistor in this application.
Note 10. Some models use 100K resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA DUMONT Part No.	STANCOR Part No.	MERIT Part No.	CHICAGO Part No.
T1	117VAC	760VCT	5VAC	6.3VAC	20004771			
	⑤ 2.0IA	250ADC	⑤ 3A	⑤ 6.2A				

TRANSFORMER (FILAMENT)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA DUMONT Part No.	STANCOR Part No.	MERIT Part No.	CHICAGO Part No.
T2	117VAC	6.3VAC			20005012			F0-615
	⑤ .1A	⑤ 1.2A						

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING DC RESISTANCE PRI.	RATING DC RESISTANCE SEC.	DUMONT Part No.	STANCOR Part No.	MERIT Part No.	CHICAGO Part No.	NOTES
T3	160Ω	1330Ω	20004721	A-8122	A-3000 ③	TB0-1 ③	Vertical Blocking Osc.
T4	235Ω	7.3Ω	20005262				Horizontal Output Trans.
	Tap 22Ω	Tap .6Ω					
		SEC. 2					
		1.7Ω					
		SEC. 3					
		0Ω					
T5	670Ω	5.9Ω	20005031 ④				Vertical Output Trans.
T6A	14.5Ω		21006091 Or				Horizontal Deflection Coil
B	47.5Ω		21006926				Vertical Deflection Coil
T7	825Ω		21005343				Focus Coil

③ Drill one new mounting hole.
④ Part #2000549 used in some models as alternate part.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	DUMONT Part No.	STANCOR Part No.	MERIT Part No.	CHICAGO Part No.	INSTALLATION NOTES
T8	4.65kΩ	3.7Ω	305Ω	6Ω		A-3877 ③	A-2930 ③	R0-9 ③	③ Drill one new mounting hole

SPEAKER

ITEM No.	RATINGS FIELD RES.	RATINGS V. C. IMP.	DUMONT Part No.	VIKING Part No.	QUAM Part No.	NOTES
SP1	PM	3.7Ω	18003081 ①	10J12	10A4A	① Used in Models Strathmore, Andover And Park Lane
			18003131 ②			② Used in Models Sumter And Carlton Only
SP2	CONE DIA. 9 3/8"	V. C. DIA. 1"				

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D. C. RESISTANCE	RATINGS INDUCTANCE (0 CURRENT 1000 ∿)	DUMONT Part No.	STANCOR Part No.	MERIT Part No.	CHICAGO Part No.	INSTALLATION NOTES
L1	.250A	10Ω	.2 Henry	21005433				
L2	.250A	58Ω	3.5 Henries	21005213				

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	DUMONT Part No.	MEISSNER Part No.	NOTES
L3	Ant. Trans.	0Ω	0Ω	20004592		
L4 A	IF Trap	.4Ω		21006721		
B	IF Trap			21007091		
L5	Ant. Coils	0Ω				Channels 2 thru 6
L6	Ant. Coils	0Ω				Channels 7 thru 13
L7	Ant. Coil End Inductor	0Ω		21005952		
L8	Fil. Choke	0Ω		21005951		
L9	RF Coil End Inductor	0Ω		21005971		
L10	RF Coil					
L11A	Band Pass Coil	.1Ω		21005731		
B	Band Pass Coil			21007051		
L12	Mixer Grid End Inductor	0Ω		21005981		
L13	Mixer Grid Coil	0Ω				
L14	Band Pass Coil	0Ω		21006001		
L15	RF Choke	0Ω		21005952		
L16	Osc. Coil	0Ω				
L17	Osc. Coil Shunt	0Ω		21006632		
L18	Osc. Coil End Inductor	0Ω		21005991		
L19	Fil. Choke	0Ω		21005952		
L20	Adj. Channel Sound Trap	.7Ω	0Ω	21006161		
L21	1st Video IF	.1Ω		21006171		
L22	Video Coupling	.2Ω		20005351		Includes Trap
L23	2nd Video IF	.7Ω	.7Ω	20004741		
L24	3rd Video IF	.7Ω	.7Ω	20004711		
L25	4th Video IF	.3Ω	.3Ω	20004751		

PARTS LIST AND DESCRIPTIONS (Continued)

COILS-RF-IF (CONT.)

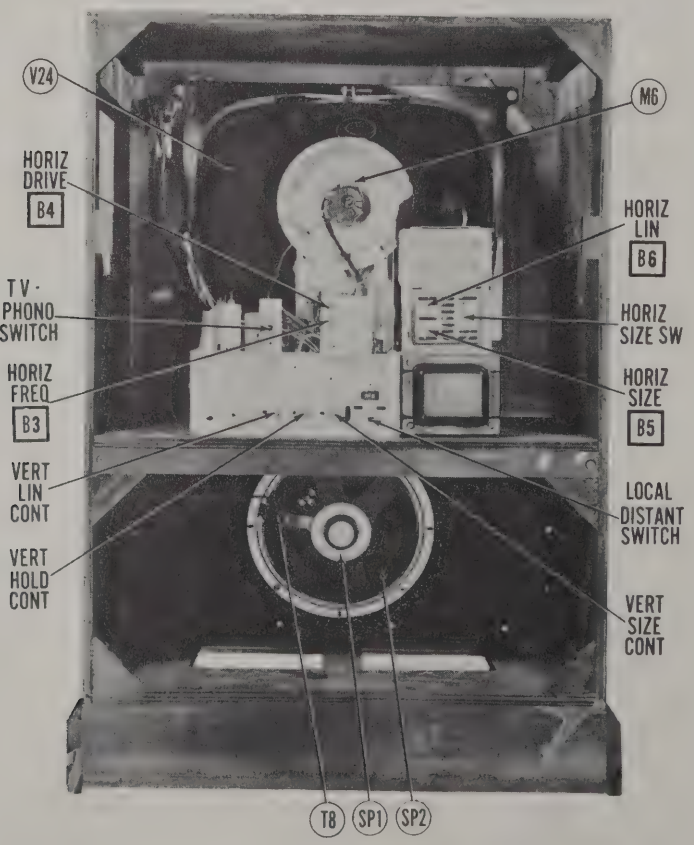
ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	DUMONT PART No.	MEISSNER PART No.	
L26	Sound Trap	.1Ω		21004802		
L27	5th Video IF	.9Ω	.5Ω	20005241		
L28	78.75MC Trap	0Ω		21007131		
L29	Peaking	2.8Ω		21006621		Black Dot
L30	Peaking	16Ω		21006627		Blue Dot
L31	4.5MC Trap	3.2Ω		21004831		Brown - Black Dots
L32	Peaking	8.5Ω		21006624		Red Dot
L33	Peaking	16Ω		21006627		Blue Dot (Some Models Use Yellow Dot Coil 10Ω)
L34	79MC Trap	.5Ω		21005411		
L35	1st Sound IF	.2Ω	.2Ω	20004511		
L36	2nd Sound IF	.2Ω	.2Ω	20005581		
L37	Disc. Trans.	.1Ω	.1Ω	20005271		
L38	RF Choke	.28Ω		21006621		Black Dot
L39	Sync. Det. Trans.	.1Ω	.1Ω	20005251		
L40	Horiz. Osc. Coil	130Ω	35Ω	20004611		Primary Tapped @ 38Ω
L41	Damping Coil	3.9Ω		21006111		
L42	Horiz. Lin.	7.8Ω		21005491		Tap at 3Ω
L43	Horiz. Size	8.5Ω		21005821		Variable Coil
L44	Horiz. Size	4.5Ω		21005811		Fixed Coil
L45	RF Choke	.4Ω				Not used in All Models

FUSES

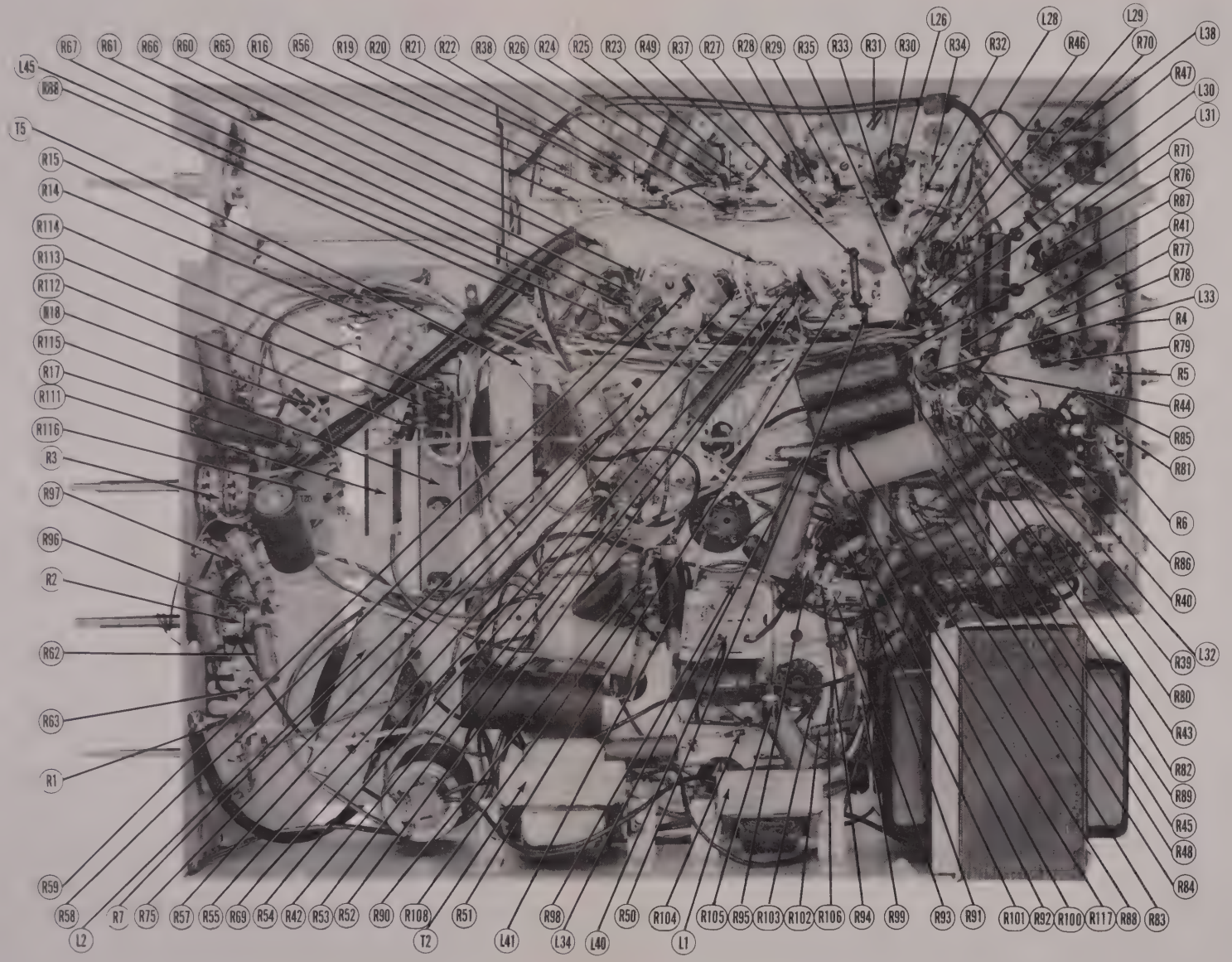
ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			DUMONT PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M1	3AG	.250	11000720	11000600	312.250	357001	

MISCELLANEOUS

ITEM No.	PART NAME	DUMONT PART No.	NOTES
M2	RF Tuner	89003941	
M3	Switch	05004300	TV-Phono
M4	Switch	05003431	Size
M5	Switch	05004200	Local-Distant
M6	Ion Trap	21006932	
B3, B4	Trimmer	03018340	Two Sections (Horiz. Freq. 10-160MMF-, Horiz. Drive 40-250MMF)
	Safety Glass	45000049	Strathmore, Andover, Park Lane Only
	Mask Assembly	64003544	Strathmore, Andover, Park Lane Only
	Knob	45002352	Tuning (Mahogany)
	Knob	45002351	Tuning (Blonde)
	Dial	45002331	Main



CABINET-REAR VIEW



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

PHOTOFACT* Folder

*TRADE MARK

EMERSON MODELS 660B, 664B, 673B (Ch. 120133-B)

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MODEL 664B

EMERSON MODELS 660B, 664B, 673B (Ch. 120133-B)

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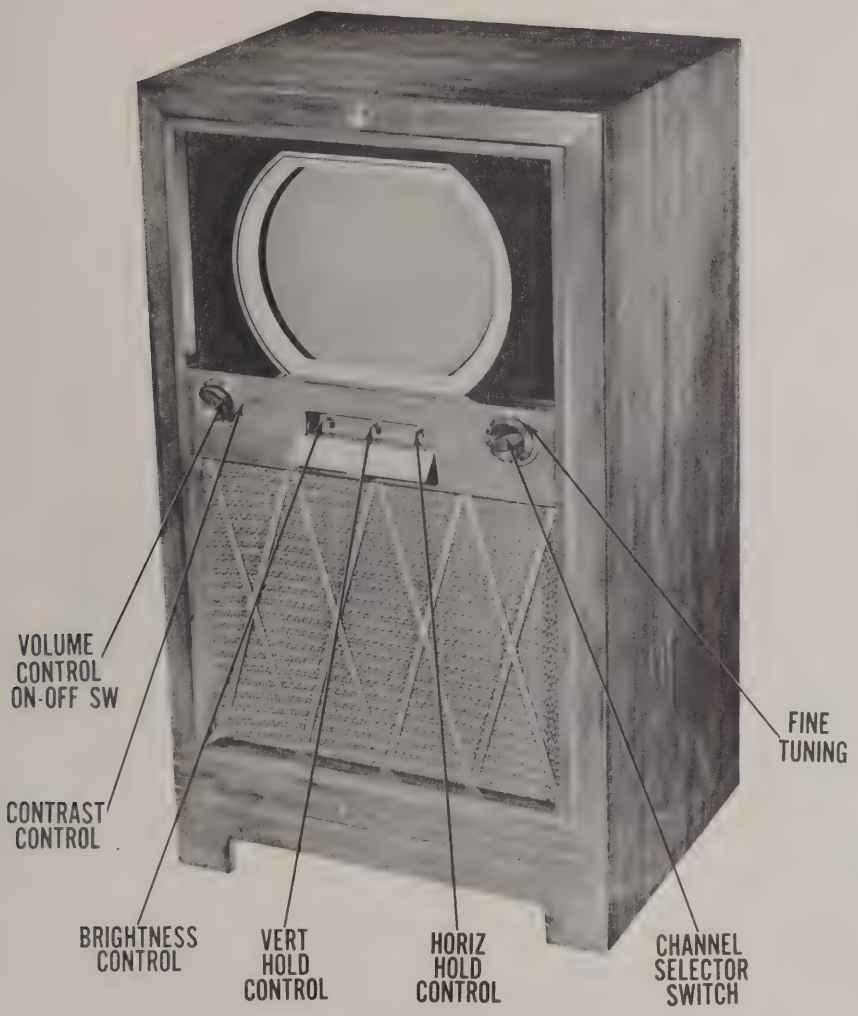

EMERSON MODEL 664B

TRADE NAME	Emerson, Models 660B, 664B, 673B (Ch. 120133B)
MANUFACTURER	Emerson Radio And Phono Corp., 111 Eighth Ave., New York (11), New York
TYPE SET	Television Receiver
TUBES	Seventeen
POWER SUPPLY	110-120 Volts AC - 60 Cycle
RATING	1.3 Amp. @ 117 Volts AC
TUNING RANGE—	Channels 2 thru 13

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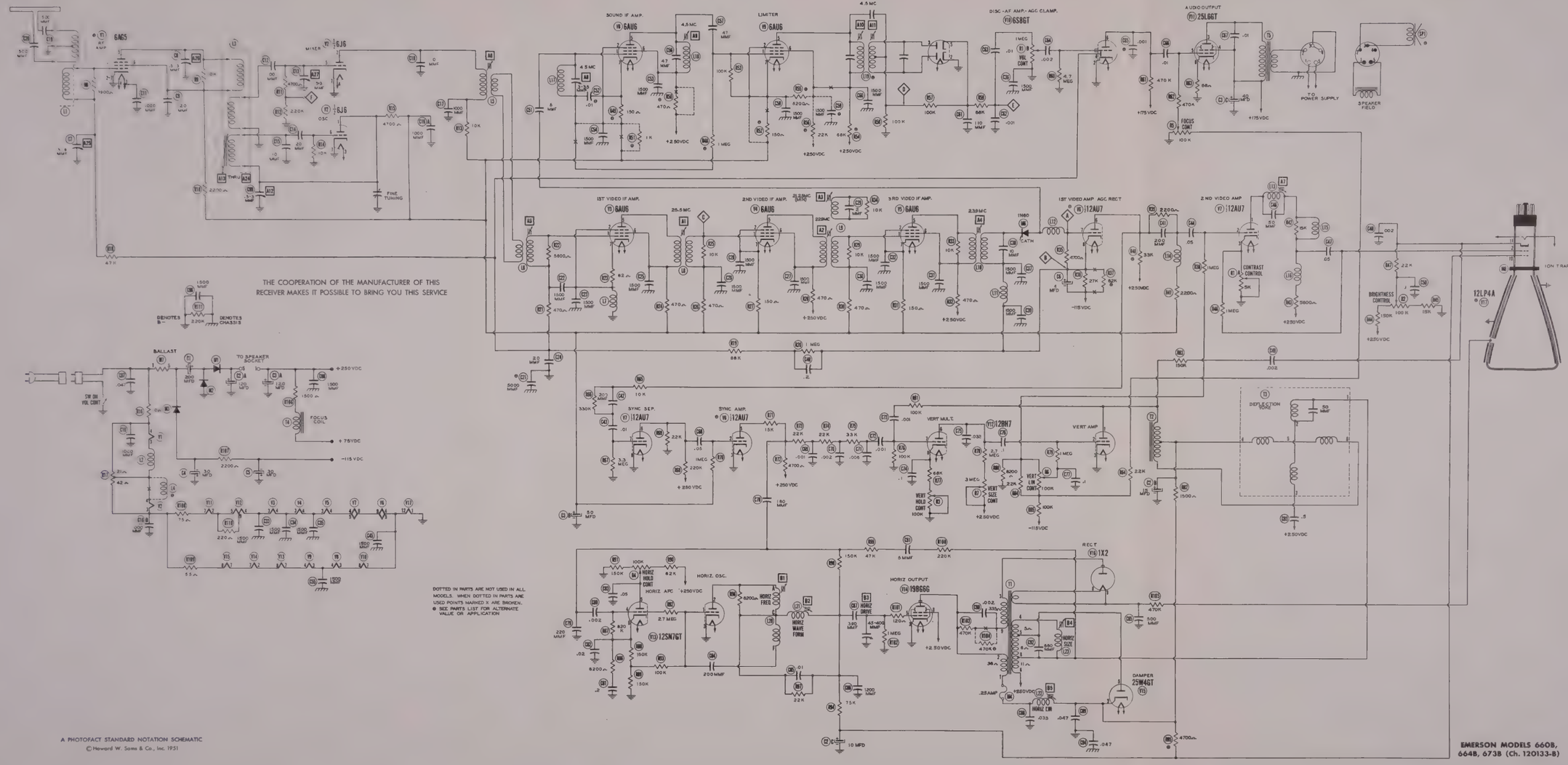
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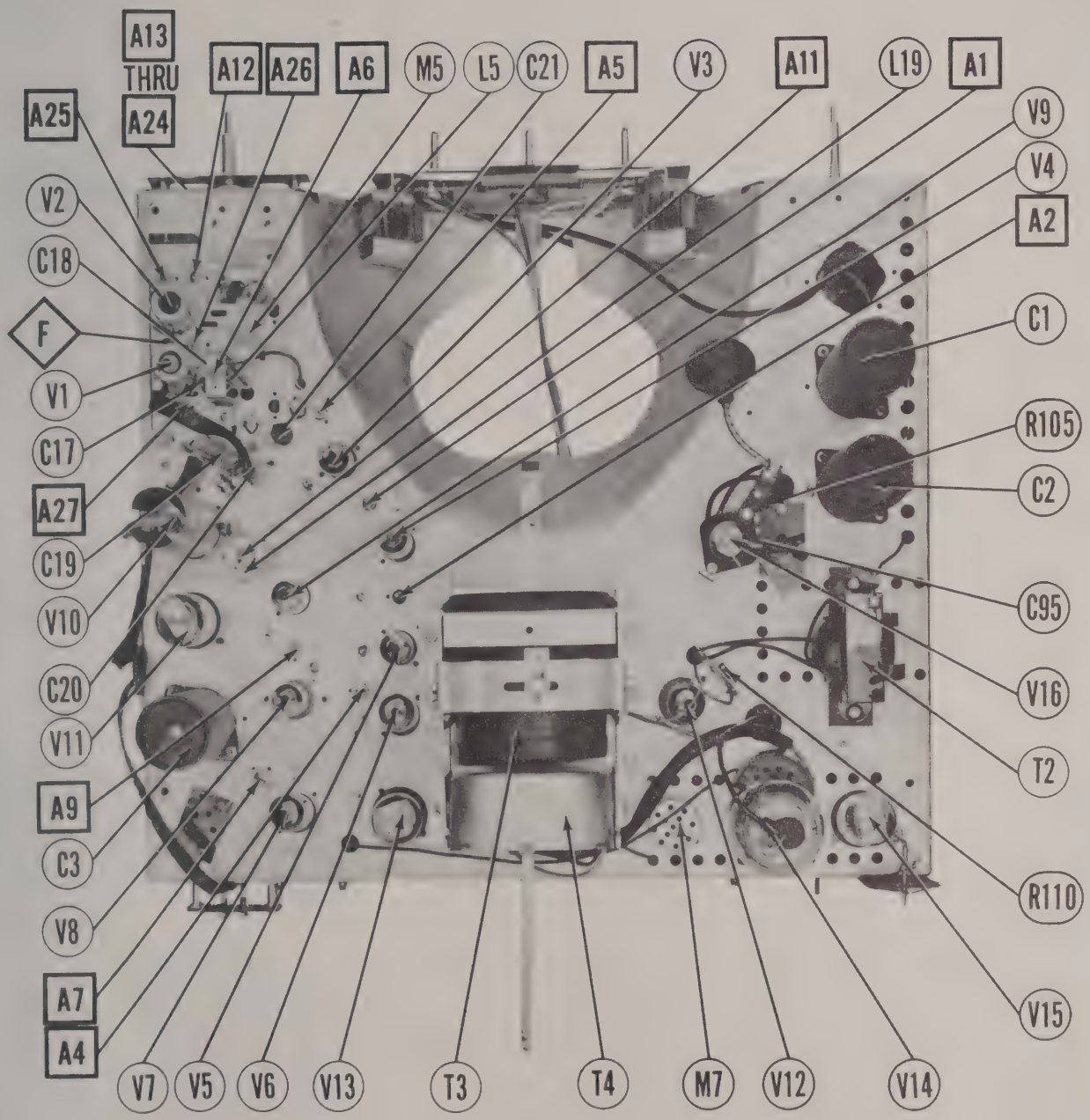
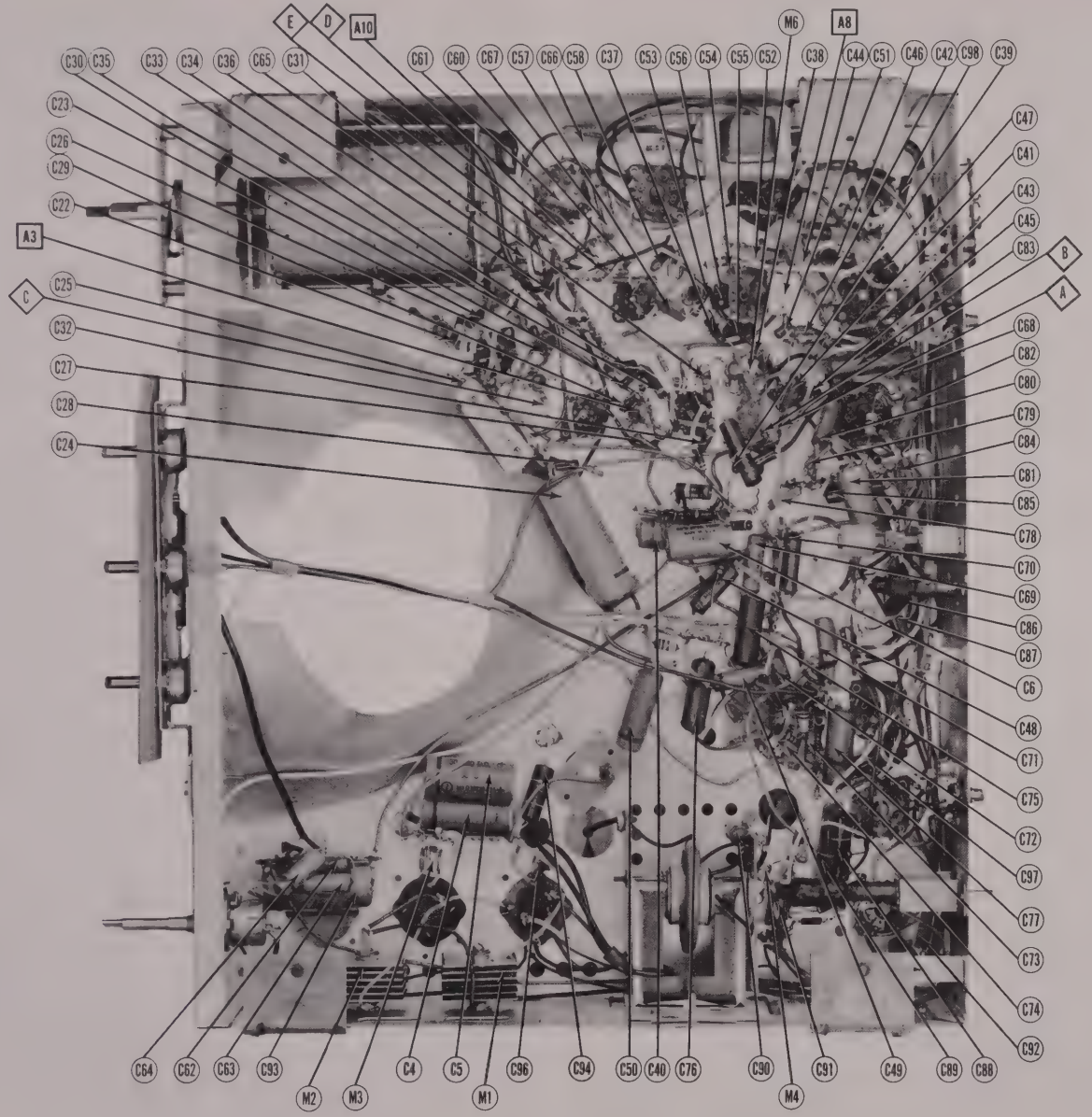
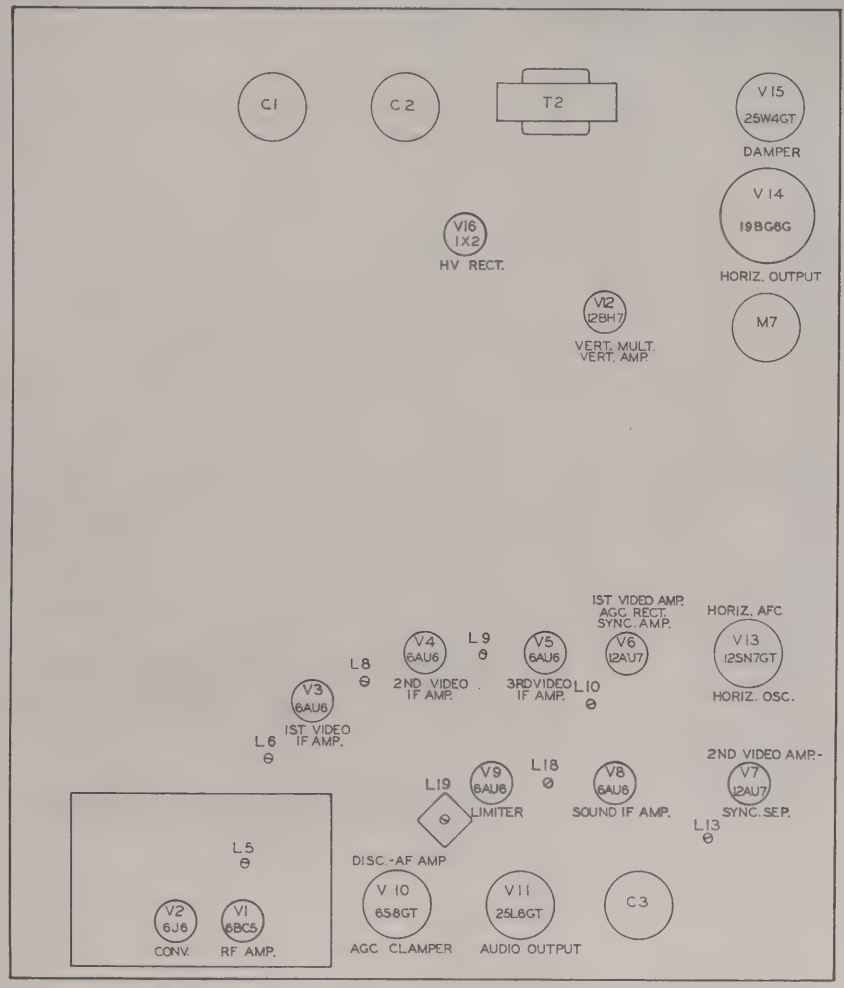


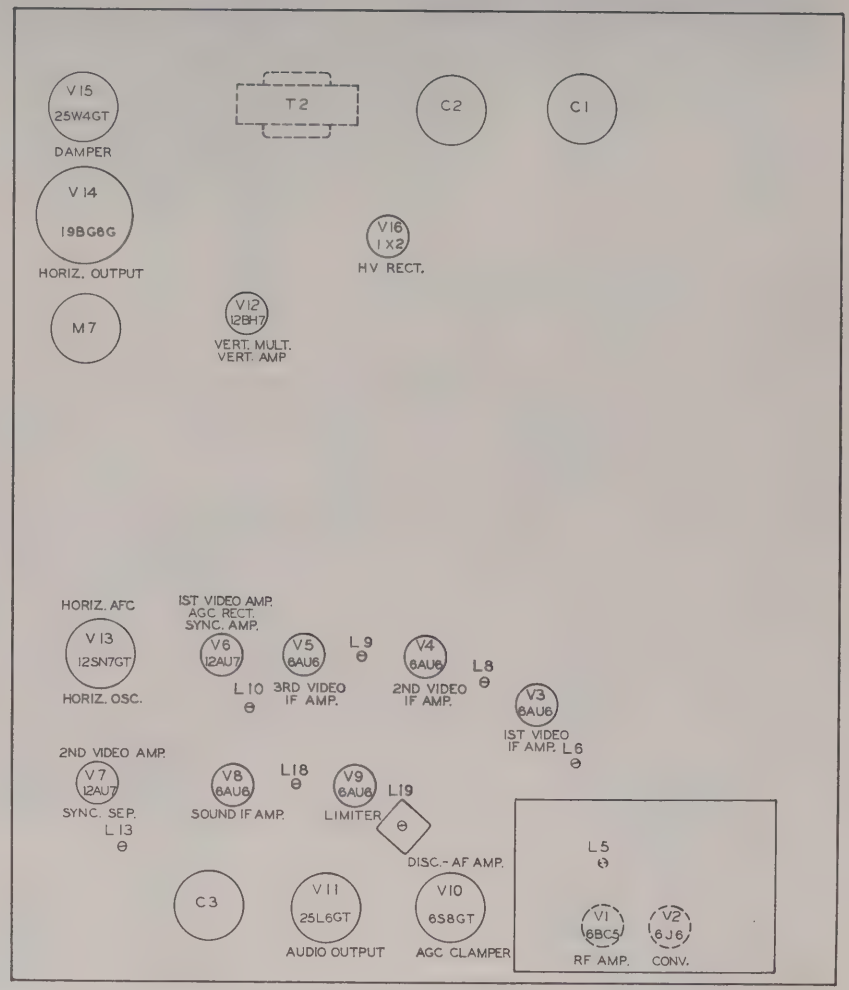
CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



TOP VIEW



BOTTOM VIEW

TUBE PLACEMENT CHART

EMERSON MODELS 660B, 664B, 673B (Ch. 120133-B)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The end of the high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator to disable the high voltage.

If the set is to be aligned without the picture tube, short pins 1 and 12 of the picture tube socket to complete the filament string.

Use an isolation transformer to protect the test equipment.

VIDEO IF ALIGNMENT

Remove the converter tube (V2) and replace it with a 6J6 which has pin 1 removed, this will disable the local oscillator and prevent the possibility of erroneous indications.

Connect the negative lead of a 3 volt battery to the junction of R19 and C24 connect the positive lead to B-.

During video IF alignment the common lead of the VTVM is connected to approximately 115 volts with respect to chassis. Avoid grounding or touching the VTVM case.

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube (V2). Low side to B-.	Not used	25.5MC (Unmod.)	Any	USE VTVM DC probe to Point (A). Common to Point (B).	A1	Adjust for maximum deflection.
2.	"	"	"	22.9MC	"	"	A2	"
3.	"	"	"	21.25MC	"	"	A3	Adjust for MINIMUM deflection.
4.	"	"	"	23.9MC	"	"	A4	Adjust for maximum deflection.
5.	"	"	24.5MC (10MC SWP)	21.25MC 25.75MC	"	Vert. amp. thru detector probe (fig. 1) to Point (C). Low side to B-.	A5, A6	Adjust for response curve similar to figure 2.
6.	"	"	"	21.25MC 22.5MC 25.75MC	"	Vert. amp. to Point (A). Low side to B-.		Check for response curve similar to figure 3. If necessary retouch A1, A2, A4, A5 and A6 for proper response.

4.5MC TRAP ADJUSTMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
7.	.001MFD	High side to Point A. Low side to B-.	4.5MC (Unmod.)	Any	DC probe thru detector (figure 1) to pin 2 of picture tube. Low side to B-.	A7	Adjust for MINIMUM deflection.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
8.	.001MFD	High side to Point A. Low side to B-.	4.5MC (Unmod.)	Any	DC probe thru 10KΩ to Point (D). Common to B-.	A8, A9, A10	Adjust for maximum deflection.
9.	"	"	"	"	DC probe to Point (E). Common to B-.	A 11	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	.001MFD	High side to Point A. Low side to B-.	4.5MC (450KC SWP)	4.5MC	Any	Vert. amp. thru 10KΩ to Point (D). Low side to B-.	A8, A9, A10	Adjust for maximum amplitude and symmetry as per figure 4.
9.	"	"	"	"	"	Vert. amp. to Point (E). Low side to B-.	A 11	Adjust A11 so 4.5MC occurs at center of crossover lines as per figure 5. SLIGHTLY retouch A10 for maximum amplitude and straightness of crossover lines.

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket. The overall oscillator circuit adjustment (A12) has been pre-set at the factory and should not be adjusted in the field.

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC SWP)	211.25MC 215.75MC	13	Vert. amp. to Point (A) Low side to B-.	A13	Adjust to place sound marker in "notch" as shown in figure 6. The video marker should be at 50%.
			207MC (10MC SWP)	205.25MC 209.75MC	12		A14	
			201MC (10MC SWP)	199.25MC 203.75MC	11		A15	
			195MC (10MC SWP)	193.25MC 197.75MC	10		A16	
			189MC (10MC SWP)	187.25MC 191.75MC	9		A17	
			183MC (10MC SWP)	181.25MC 185.75MC	8		A18	
			177MC (10MC SWP)	175.25MC 179.75MC	7		A19	
			85MC (10MC SWP)	83.25MC 87.75MC	6		A20	
			79MC (10MC SWP)	77.25MC 81.75MC	5		A21	
			69MC (10MC SWP)	67.25MC 71.75MC	4		A22	
			63MC (10MC SWP)	61.25MC 65.75MC	3		A23	
			57MC (10MC SWP)	55.25MC 59.75MC	2		A24	

ALIGNMENT INSTRUCTIONS (CONT.)

RF ALIGNMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC SWP)	205.25MC 209.75MC	12	Vert. amp. thru 10KΩ to Point (F). Low side to B-.	A25, A26, A27	Adjust for maximum amplitude and symmetry as per figure 7 with markers at 90%.
12.	"	"	213MC (10MC SWP)	211.25MC 215.75MC	13	"		Check all channels for response similar to figure 7. If markers fall below 70% on any channels make compromise adjustment of A25, A26 and A27 with channels selector set for that channel. Recheck all channels to see that they have not been seriously effected.
			201MC (10MC SWP)	199.25MC 203.75MC	11			
			195MC (10MC SWP)	193.25MC 197.75MC	10			
			189MC (10MC SWP)	187.25MC 191.75MC	9			
			183MC (10MC SWP)	181.25MC 185.75MC	8			
			177MC (10MC SWP)	175.25MC 179.75MC	7			
			85MC (10MC SWP)	83.25MC 87.75MC	6			
			79MC (10MC SWP)	77.25MC 81.75MC	5			
			69MC (10MC SWP)	67.25MC 71.75MC	4			
			63MC (10MC SWP)	61.25MC 65.75MC	3			
			57MC (10MC SWP)	55.25MC 59.75MC	2			

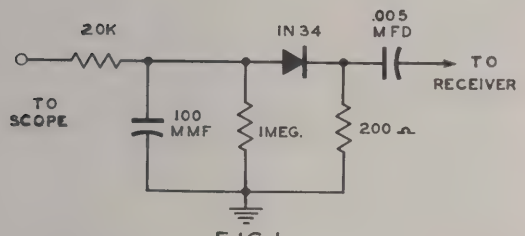


FIG. 1

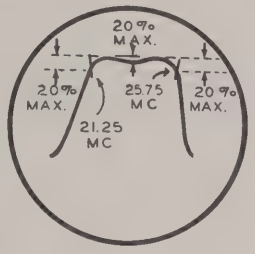


FIG. 2

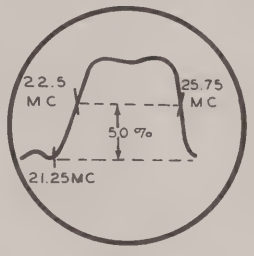


FIG. 3

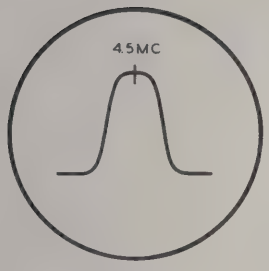


FIG. 4

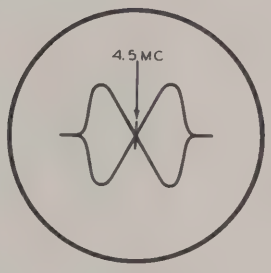


FIG. 5

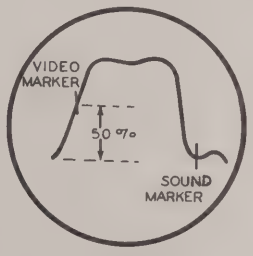


FIG. 6

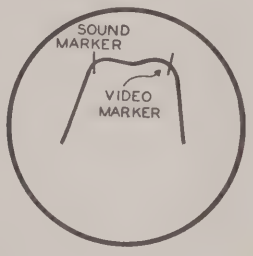


FIG. 7

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BC5	-.3VDC	0V	100VDC	107VAC	85VDC	85VDC	0V		
V 2	6J6	65VDC	70VDC	.94VAC	100VAC	-2.2VDC	§-2VDC	0V		
V 3	6AU6	-.1VDC	0V	36VAC	30VAC	105VDC	105VDC	1VDC		
V 4	6AU6	♦ 0V	♦1.9VDC	30VAC	24VAC	♦130VDC	♦130VDC	♦1.9VDC		
V 5	6AU6	♦0V	♦1.9VDC	24VAC	18VAC	♦130VDC	♦130VDC	♦1.9VDC		
V 6	12AU7	38VDC	.4VDC	0V	6VAC	6VAC	▲215VDC	▲148VDC	▲150VDC	12VAC
V 7	12AU7	220VDC	-1.2VDC	2.8VDC	18VAC	18VAC	17VDC	-1.5VDC	0V	12VAC
V 8	6AU6	♦ 0V	♦1.5VDC	12VAC	18VAC	♦130VDC	♦130VDC	♦1.5VDC		
V 9	6AU6	♦-.3VDC	♦.3VDC	18VAC	23VAC	♦30VDC	♦30VDC	♦.3VDC		
V 10	6S8GT	-1VDC	0V	-1.5VDC	-.1VDC	-.1VDC	85VDC	6VAC	12VAC	TOP CAP -1.5VDC
V 11	25L6GT	0V	50VAC	70VDC	75VDC	0V	-.2VDC	75VAC	3.2VDC	
V 12	12BH7	340VDC 240VDC	-3.5VDC -4.6VDC	0V	36VAC	50VAC	40VDC 6VDC	6.5VDC 0V	9.8VDC 5.6VDC	43VAC
V 13	12SN7GT	-65VDC	175VDC	0V	-2VDC -3.4VDC	175VDC 110VDC	-23VDC -6.5VDC	23VAC	35VAC	
V 14	19BG6G	0V	35VAC	0V	-18VDC	-18VDC	0V	55VAC	245VDC	TOP CAP *
V 15	25W4GT	0V	0V	330VDC	0V	245VDC	0V	55VAC	80VAC	
V 16	1X2	* DO NOT MEASURE								
V 17	12LP4A	0V	1.2VDC	PIN 10 320VDC	PIN 100VDC	11 15VDC	PIN 12 6VAC			

FOCUS CONTROL COUNTER CLOCKWISE
♦ MEASURED FROM JUNCTION OF C3B, R41 AND R70.
▲ MEASURED FROM -115VDC POINT

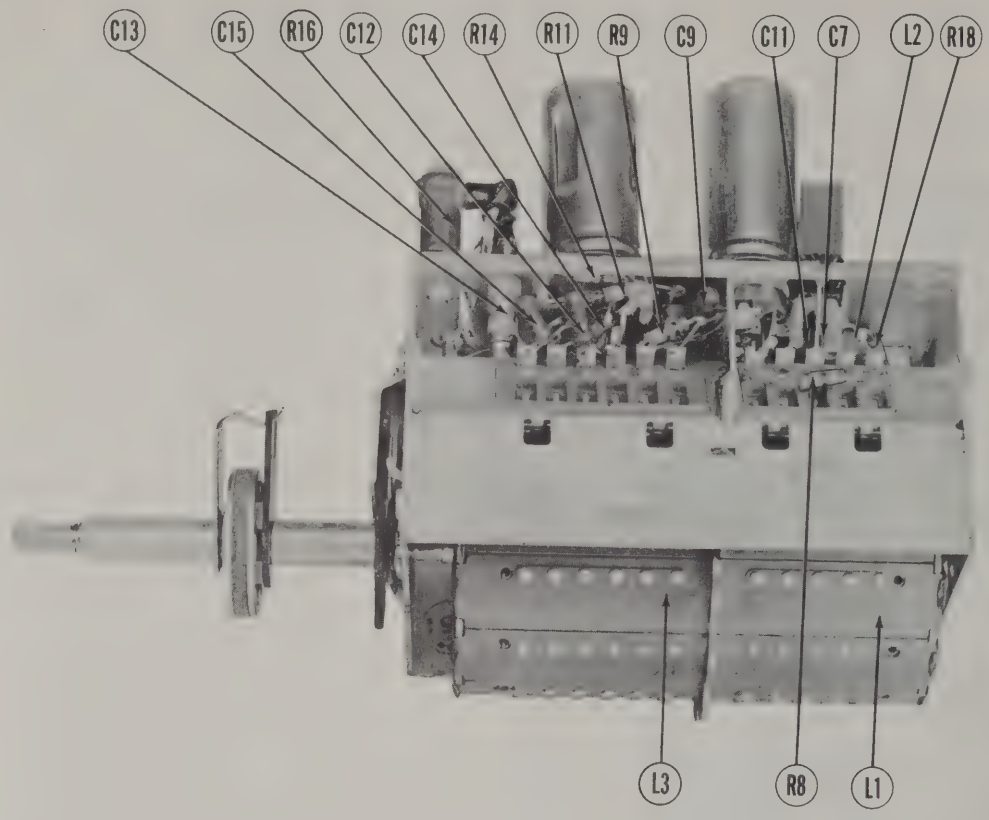
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BC5	▲ 1Meg	0Ω	65Ω	68Ω	†40KΩ	†40KΩ	0Ω		
V 2	6J6	†43KΩ	†58KΩ	62Ω	65Ω	220KΩ	10KΩ	0Ω		
V 3	6AU6	▲1Meg	3Ω	24Ω	21Ω	♦470Ω	♦470Ω	85Ω		
V 4	6AU6	♦470Ω	♦150Ω	21Ω	18Ω	†550Ω	†550Ω	♦150Ω		
V 5	6AU6	♦470Ω	♦150Ω	18Ω	15Ω	†550Ω	†550Ω	♦150Ω		
V 6	12AU7	†20KΩ	♦1Meg	0Ω	8Ω	8Ω	†33KΩ	▲25KΩ	▲20KΩ	11Ω
V 7	12AU7	† 5.6KΩ	1Meg	5KΩ	15Ω	15Ω	†45KΩ	3.3Meg	0Ω	11Ω
V 8	6AU6	♦1.1Meg	♦150Ω	11Ω	15Ω	†550Ω	†550Ω	♦150Ω		
V 9	6AU6	♦100KΩ	♦150Ω	15Ω	18Ω	†68KΩ	†68KΩ	♦150Ω		
V 10	6S8GT	100KΩ	0Ω	100KΩ	▲ 1Meg	200KΩ	†470KΩ	8Ω	11Ω	TOP CAP 4.7Meg
V 11	25L6GT	0Ω	28Ω	†3.9KΩ	†3.6KΩ	470KΩ	0Ω	35Ω	68Ω	
V 12	12BH7	¶2.5KΩ	1Meg	0Ω	24Ω	28Ω	†2.7Meg †5.7Meg	100KΩ	170KΩ 68KΩ	26Ω
V 13	12SN7GT	250KΩ	¶80KΩ	0Ω	850KΩ	†70KΩ †90KΩ	300KΩ	18Ω	25Ω	
V 14	19BG6G	Inf.	25Ω	0Ω	1Meg	1Meg	Inf.	30Ω	†82Ω	TOP CAP ¶70Ω
V 15	25W4GT	Inf.	Inf.	80KΩ	Inf.	†100Ω	Inf.	30Ω	36Ω	
V 16	1X2	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP ¶470KΩ
V 17	12LP4A	0Ω	1Meg	PIN 10 ¶4.7KΩ	PIN 90KΩ	11 40KΩ	PIN 12 8Ω			

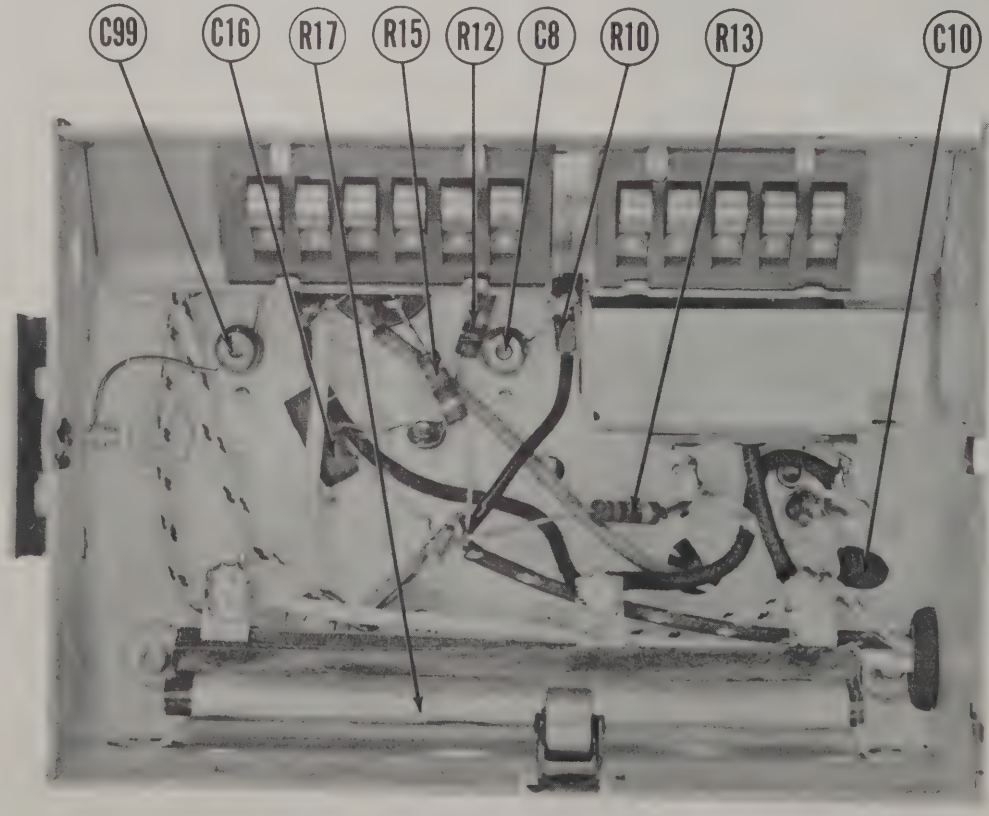
FOCUS CONTROL COUNTER CLOCKWISE
▲ MEASURED FROM -115VDC POINT
♦ MEASURED FROM JUNCTION OF C3B, R41 AND R70
† MEASURED FROM OUTPUT OF M1
¶ MEASURED FROM PIN 3 OF V15

ALL VOLTAGE AND RESISTANCE MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED.
AN 8Ω RESISTOR IS USED IN LIEU OF PICTURE TUBE FILAMENT

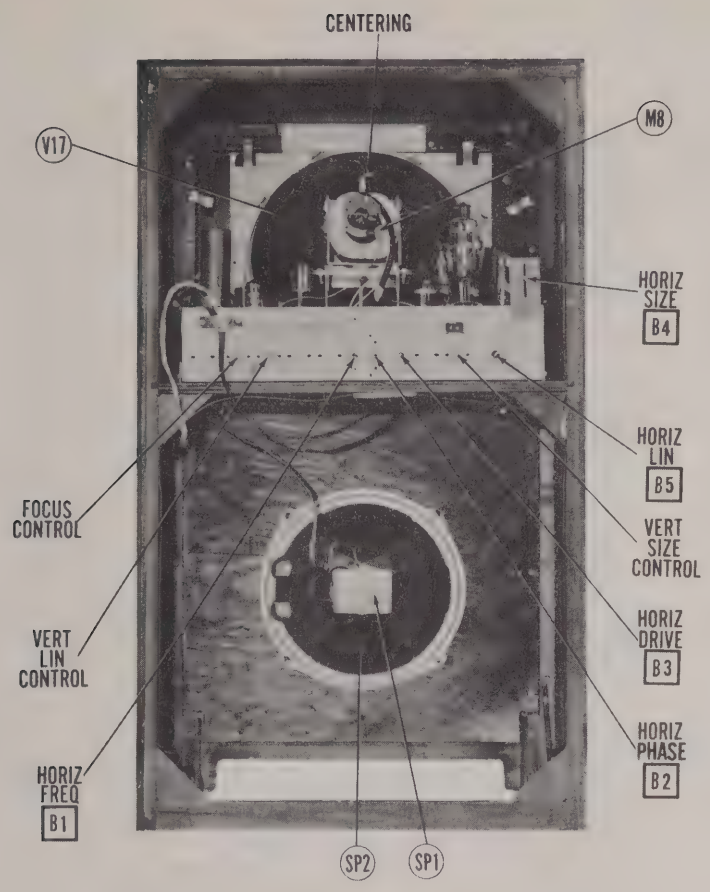
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Connect a short across C85.
Turn the set on and tune in a TV station, preferably a test pattern.
Turn the horizontal hold control to maximum counter-clockwise.
Starting with the horizontal frequency slug (B1) all the way out, turn in until picture synchronizes horizontally.
Remove the short from C85.
Connect the vertical input lead of an oscilloscope through 10KΩ to the junction of L20 and L21, connect low side to B-.
Adjust the horizontal phasing slug (B2) until the broad and narrow peaks of the waveform on the scope are of equal amplitude as shown in figure 8. If necessary during adjustment of B2, adjust B1 to keep the picture in sync. Remove the oscilloscope.
Momentarily interrupt the signal by switching to another channel and back again. The picture should be out of sync and show 4 or 5 sloping bars.
If more than 5, or less than 4, bars are present adjust B1 until 4 or 5 bars are present.
Turn the horizontal hold control slowly clockwise. The picture should pull into sync after approximately 1/4 revolution and should remain in sync over the entire hold control range.
Adjust the horizontal drive trimmer (B3) for best compromise between brightness and horizontal linearity.
Adjust the horizontal size slug (B4) until the picture fills the mask.
Adjust the horizontal linearity slug (B5) until the picture is symmetrical from left to right. Readjustment of B3 may be required for optimum results.

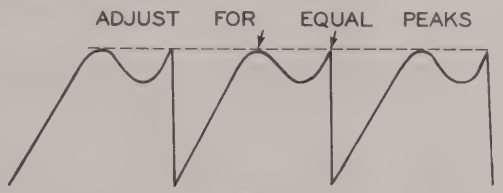


FIG. 8

DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove six wood screws securing rear cover to cabinet. Remove rear cover.
3. Disconnect built-in antenna.
4. Disconnect speaker.
5. Remove four hex head bolts from chassis. Remove chassis.
6. Remove four hex nuts from speaker. Remove speaker.

NOTE : FOR PICTURE TUBE REMOVAL, IT IS NECESSARY TO REMOVE THE CHASSIS AS OUTLINED ABOVE.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1A	RF Amplifier	800052	6BC5	7BD	
B	RF Amplifier		6CB6	6CK	
C	RF Amplifier	800535	6AG5	7BD	
V2	Converter	800536	6J6	7BF	
V3	1st Video IF Amp.	800533	6AU6	7BK	
V4	2nd Video IF Amp.	800533	6AU6	7BK	
V5	3rd Video IF Amp.	800533	6AU6	7BK	
V6A	1st Video Amp. - AGC Rectifier - Sync. Amplifier	80026	12AU7	9A	
B	1st Video Amp. - AGC Rectifier - Sync. Amplifier	80047	12AT7	9A	
V7	2nd Video Amp. - Sync. Separator	80026	12AU7	9A	
V8	Sound IF Amplifier	80533	6AU6	7BK	
V9	Limiter	80533	6AU6	7BK	
V10	Discriminator - AF Amp. - AGC Clamp	80015	6S8GT	8CB	
V11	Audio Output	80490	25L6GT	7AC	
V12	Vert. Mult. - Vert. Amplifier	80053	12BH7	9A	
V13	Horiz. AFC - Horiz. Oscillator	80039	12SN7GT	8BD	
V14	Horiz. Output	80044	19BG6G	5BT	
V15	Damper	80045	25W4	4CG	
V16	H.V. Rectifier	80046	1X2	7CB	
V17A	Picture Tube	810003-4	12LP4A	12D	
B	Picture Tube		12LP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: EMERSON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1	200	150	925166-1	E4A78		UPE10101S		TVL-1431	Voltage Doubler Cap
C2A	120	300	925166-3	E4C243		UPT305		TVL-3785	▪ Filter
B	15	450							■ Vert. Output Dec.
C	10	450							▲ Decoupling
C3A	120	300	925181	E4C245		UPT125430		TVL-3585	▪ Filter
B	50	300							■ Filter
C	40	200							▲ Decoupling
C4	30	150	925070-1	PRS150/30		BR3015A		TVA-1412	Filter
C5	30	150	925070-1	PRS150/30		BR3015A		TVA-1412	Filter
C6	4	200	925070-2	PRS450/4		BR425		TVA-1501	V. Amp. Cathode
C7	3-9								Variable Trimmer
C8	.5-3				829-3				Variable Trimmer
C9	120			SI120	D6-121		GP2K-120	19C29	RF Amp. Dec.
C10	1000			BPD-001	DD-102		801-001	19C1	RF Amp. Fil.
C11	1000			SI1000	D6-102		GP2L-001	19C1	RF Amp. Fil.
C12	100			SI100N750	TCN-100		N750L-100	29C16	RF Coupling
C13	.5-3				829-3				Variable Trimmer
C14	20			SI20NPO	TCZ-20		NPOK-20		Osc. Grid Cap
C15	10			SI10N750	TCN-10		N750K-10	19C4	Fixed Trimmer
C16A	1000			BPD-2X001	DD-2X001		812-2X001	29C7	RF Bypass
B	1000								Conv. Fil. Bypass
C17	1000			SI1000	D6-102		GP2L-001	19C1	Conv. Plate Dec.
C18	10			SI10N750	TCN-10		N750K-10	19C4	Fixed Trimmer
C19	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	Ant. Coupling
C20	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	Ant. Coupling
C21	5000			BPD-005	DD-502	1D5D5	811-005	29C1	RF Bypass †
C22	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	AGC Filter
C23	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	RF Bypass
C24	3.0	50		923261					AGC Filter
C25	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	1st V. IF Dec.
C26	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	2nd V. IF Grid Dec.
C27	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	2nd V. IF Dec.
C28	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	2nd V. IF Cathode
C29	3	500	923261						Fixed Trimmer
C30	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	3rd V. IF Grid Dec.
C31	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	3rd V. IF Dec.
C32	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	3rd V. IF Cathode
C33	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	1st V. IF Fil.
C34	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	2nd V. IF Fil.
C35	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	3rd V. IF Fil.
C36	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	RF Bypass
C37	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	RF Bypass
C38	10	500	928002	1469-00001	TCZ-10	5R5Q1	NPOK-10	19C4	Fixed Trimmer
C39	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	AGC Filter
C40	.2	400	923091	P488-22		GT4P2			AGC Filter
C41	200	500	910047	1468-0002	D6-201	5W5T2	GP2K-200	1FM-32	Peaking
C42	200	500	910047	1468-0002	D6-201	5W5T2	GP2K-200	1FM-32	Video Coupling
C43	.01	600	922032	P688-01	D6-103	PTE6S1	821-01	6TM-S1	Video Coupling
C44	.05	400	923062	P488-05	DF-503	PTE4S5		4TM-S5	Video Coupling
C45	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	V. Amp. -Sync. Amp. Fil.
C46	50			SI50	D6-500	5R5Q5	GP1K-50	19C28	Fixed Trimmer
C47	.05	400	923062	P488-05	DF-503	PTE4S5		4TM-S5	Video Coupling
C48	.002	600	923088	P688-002	D6-202	PTE6D2	GP2M-002	6TM-D2	Voltage Divider
C49	.002	600	923088	P688-002	D6-202	PTE6D2	GP2M-002	6TM-D2	Vert. Sweep Coupling
C50	.1	400	923084	DF-104	PTE4P1			4TM-P1	Plc. Tube Cath. Dec.
C51	5		928023	SI5NPO	TCZ-4.7	5R5Y5	NPOK-5	MS-55	S. IF Coupling
C52	.01	200	923061	P488-01	D6-103	PTE4S1	821-01	4TM-S1	S. IF Grid Dec. *
C53	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	S. IF Dec.
C54	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	S. IF Cathode
C55	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	S. IF Fil.
C56	47	500	915000-1	1469-00005	TCZ-47	5R5Q5	NPOM-50	MS-45	Fixed Trimmer
C57	47	500	910033	1468-00005	D6-470	5W5Q5	GP1K-47	1FM-45	S. IF Coupling
C58	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	Limiter Dec.
C59	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	Limiter Screen *
C60	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	Limiter Dec.

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: EMERSON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C61	110	500	910043	1468-0001	D6-101	5W5T1	GP1K-100	1FM-31	RF Bypass
C62	.001	600	923079	P688-001	D6-102	PTE6D1	GP2L-001	6TM-D1	De-emphasis
C63	.01	400	923061	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Audio Coupling
C64	.002	600	923088	P688-002	D6-202	PTE6D2	GP2M-002	6TM-D2	Audio Coupling
C65	.001	400	923079	P688-001	D6-102	PTE6D1	GP2L-001	6TM-D1	De-emphasis *
C66	.01	400	923061	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Audio Coupling
C67	.01	400	923061	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Output Plate
C68	.05	400	923062	P488-05	DF-503	PTE4S5		4TM-S5	Sync. Coupling
C69	.001	600	923079	P688-001	D6-102	PTE6D1	GP2L-001	6TM-D1	Integrator Net
C70	.002	600	923088	P688-002	D6-202	PTE6D2	GP2M-002	6TM-D2	Integrator Net
C71	.006	400	923092	P488-006	D6-562	PTE6D6		6TM-D6	Integrator Net
C72	.001	600	923079	P688-001	D6-102	PTE6D1	GP2L-001	6TM-D1	Vert. Osc. Grid
C73	.001	600	922021	P688-001	D6-102	PTE6D1	GP2L-001	6TM-D1	Vert. MV Feedback
C74	.1	200	922014	P288-1	DF-104	PTE2P1		2TM-P1	Vert. MV Cathode
C75	.033	600	922024	P688-033		PTE6S3		6TM-S33	Vert. Discharge
C76	.1	400	922008	P488-1	DF-104	PTE4P1		4TM-P1	Vert. Sweep Coupling
C77	.1	200	923067	P288-1	DF-104	PTE4P1		2TM-P1	Bias Filter
C78	180	500	910043-2	1469-0002	D6-181	5R5T2	GP2K-180	MS-200	Hor. Sync. Coupling
C79	220	500	910028	1469-0002	D6-221	5R5T2	GP2K-220	MS-200	Voltage Divider
C80	.002	600	923088	P688-002	D6-202	PTE6D2	GP2M-002	6TM-D2	Hor. Sync. Coupling
C81	.2	200	923091	P488-22		GT4P2		2TM-P22	AFC Filter
C82	.02	400	923314	P488-02	DF-203	PTE4S2		4TM-S2	AFC Filter
C83	.05	400	923062	P488-05	DF-503	PTE4S5		4TM-S5	Horiz. AFC Plate
C84	200	500	910047	1468-0002	D6-201	5W5T2	GP2K-200	1FM-32	Horiz. Osc. Grid
C85	.01	600	922041	P688-01		PTE6S1		6TM-S1	Fixed Trimmer
C86	1200	500	910044						Horiz. Discharge
C87	390	500	910212	1468-0004	D6-391	5W5T4	GP2K-390	1FM-34	Horiz. Sweep Coupling
C88	.033	600	922024	P688-033		PTE6S3		6TM-S33	Damper Filter
C89	.047	600	922023	P688-047		PTE6S5		6TM-S47	Damper Filter
C90	.002	1600	923088	P1688-002		PTE16D2		MB-D2	Horiz. Sweep Coupling
C91	5	1000	910045	1469-HV-0000-05					Horiz. Feedback
C92	680	1000	928054						Fixed Trimmer
C93	.5	200	923102	P288-5		GT2P5		2TM-P5	Horiz. Sweep Coupling
C94	.047	400	922101	P488-047	DF-503	PTE4S5		4TM-S5	RF Bypass
C95	500	20000	923015	HV20C	TV3-502				H.V. Filter *
C96	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	RF Bypass
C97	.047	400	922101	P488-047	DF-503	PTE4S5		4TM-S5	Line Filter
C98	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	RF Bypass
C99	.5-3				829-3				Variable Trimmer

* Not used in all models.
† Some models use 5000MMF in this application.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	5000Ω	½	39074-6	Concentrikit		SBB-647-S	Contrast Control - Front
B	1Meg	½		Bi7-114 *			Volume Control - Rear
C	Shaft End			Bi3-137 *			Attach Per Instructions In "Concentrikit"
D	Switch			E-187 *			Attach Per Instructions In "Concentrikit"
R2A	100KΩ	½	390162	76-1	AG-49-S	B-40	Brightness Control
B	Shaft		Not req.	Q11-128	RS-2	Not req.	Attach to R2A Per Instructions
R3A	100KΩ	½	390163	Not req.	AG-49-S	B-40	Vertical Hold Control
B	Shaft		Not req.	Not req.	RS-2	Not req.	Attach to R3A Per Instructions
R4A	100KΩ	½	390162	Q11-128	AG-49-S	B-40	Horizontal Hold Control
B	Shaft		Not req.	Not req.	RS-2	Not req.	Attach to R4A Per Instructions
R5A	100KΩ	½	390132	Q11-128	AG-49-S	AN-40	Focus Control
B	Shaft		Not req.	Not req.	FKS-1/4	AK-1	Attach to R5A Per Instructions
R6A	100KΩ	½	390132	Q11-128	AG-49-S	AN-40	Vertical Linearity Control
B	Shaft		Not req.	Not req.	FKS-1/4	AK-1	Attach to R6A Per Instructions
R7A	3Meg	½	390138	Q11-140	AG-85-S	AN-84	Vertical Size Control
B	Shaft		Not req.	Not req.	FKS-1/4	AK-1	Attach to R7A Per Instructions

* Additional parts to be used with "Concentrikit".

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ± 10% UNLESS OTHERWISE SPECIFIED
R8	3900Ω	½		BTS-3900	Antenna Coil Shunt
R9	10KΩ 20%	½			RF Coil Shunt
R10	2200Ω 20%	½		BTS-2200	RF Amp. Decoupling
R11	4700Ω	½		BTS-4700	Mixer Grid
R12	220KΩ 20%	½			Mixer Grid
R13	10KΩ 20%	½			Mixer Plate Decoupling
R14	10KΩ	½			Osc. Grid
R15	4700Ω	½		BTS-4700	Osc. Plate
R16	10Ω	5		1 3/4A-10	Filament Dropping - Wire Wound
R17A	21Ω	10			Filament Shunt - Wire Wound
B	42Ω	20			Filament Shunt - Wire Wound
R18	47KΩ	½	340892	BTS-47K	AGC Network
R19	68KΩ	½	340932	BTS-68K	AGC Network
R20	1Meg 20%	½	351212	BTS-1Meg	AGC Network
R21	470Ω 20%	½	350412	BTS-470	AGC Network
R22	5600Ω	½	340672		1st Video IF Transformer Shunt
R23	82Ω	½	340232	BTS-82	1st Video IF Amp. Cathode
R24	470Ω 20%	½	350412	BTS-470	1st Video Amp. Decoupling
R25	10KΩ	½	340732		2nd Video IF Transformer Shunt
R26	470Ω 20%	½	350412	BTS-470	2nd Video IF Amp. Grid
R27	150Ω	½	340292	BTS-150	2nd Video IF Amp. Cathode
R28	470Ω	½	350412	BTS-470	2nd Video IF Amp. Decoupling
R29	10KΩ	½	340732		3rd Video IF Transformer Shunt
R30	470Ω 20%	½	350412	BTS-470	3rd Video IF Amp. Grid
R31	150Ω 20%	½	340292	BTS-150	3rd Video IF Amp. Cathode
R32	470Ω	1	350412	BTA-470	3rd Video IF Amp. Decoupling
R33	10KΩ 5%	½	340732		4th Video IF Transformer Shunt
R34	10KΩ	½	340732		Sound Trap Coil Shunt
R35	4700Ω	2	340652	BTS-4700	Video Det. Diode Load
R36	27KΩ	1	370832	BTA-27K	AGC Network
R37	82KΩ	2		BTB-82K	AGC Network - See Note 1
R38	1Meg 20%	½	351212	BTS-1Meg	Video Amp. Grid

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	IRC PART No.	IDENTIFICATION CODES
R39	2200Ω	½	340572	BTS-2200	Voltage Divider
R40	33KΩ	1		BTA-33K	Voltage Divider - See Note 1
R41	2200Ω	½	340572	BTS-2200	Voltage Divider
R42	15KΩ	½	340772	BTS-15K	Video Peaking Coil Shunt
R43	5600Ω	1	370672	BTA-5600	Video Amp. Plate
R44	150KΩ	½	341012	BTS-150K	Voltage Divider
R45	15KΩ	½	340772	BTS-15K	Voltage Divider
R46	1Meg 20%	½	351212	BTS-1Meg	Picture Tube Grid
R47	22KΩ	½	340812	BTS-22K	Picture Tube Cathode
R48	1Meg	½	351212	BTS-1Meg	Sound IF Amp. Grid - See Note 1
R49	150Ω	½	340292	BTS-150	Sound IF Amp. Cathode - See Note 2
R50	470Ω	½	350412	BTS-470	Sound IF Amp. Decoupling - See Note 1
R51	1000Ω	½	350492	BTS-1000	Bias Network - See Note 1
R52	150Ω	½	340292	BTS-150	Bias Network - See Note 1
R53	100KΩ	½	340972	BTS-100K	Limiter Grid
R54	68KΩ	½	340932	BTS-68K	Limiter Decoupling - See Note 3
R55	8200Ω	½	340712	BTS-8200	Voltage Divider - See Note 1
R56	22KΩ	½	340812	BTS-22K	Limiter Screen - See Note 1
R57	100KΩ	½	340972	BTS-100K	Disc. Diode Load
R58	100KΩ	½	340972	BTS-100K	Disc. Diode Load
R59	68KΩ	½	340932	BTS-68K	De-emphasis
R60	4.7Meg	½	351372	BTS-4.7Meg	AF Amp. Grid
R61	470KΩ	½	351132	BTS-470K	AF Amp. Plate
R62	470KΩ	½	351132	BTS-470K	Output Grid
R63	68Ω	½	340212	BW-½-68	Output Cathode
R64	22KΩ	½	340812	BTS-22K	Voltage Divider
R65	10KΩ	½	340732	BTS-10K	Isolation
R66	330KΩ	½	341092	BTS-330K	Isolation
R67	3.3Meg	½	341332	BTS-3.3Meg	1st Sync. Sep. Grid
R68	220KΩ	½	341052	BTS-220K	1st Sync. Sep. Plate
R69	22KΩ	½	340812	BTS-22K	Voltage Divider
R70	1Meg 20%	½	351212	BTS-1Meg	2nd Sync. Sep. Grid
R71	15KΩ	2	397066	BTB-15K	2nd Sync. Sep. Plate
R72	4700Ω	1	370652	BTA-4700	2nd Sync. Sep. Plate
R73	22KΩ	½	340812	BTS-22K	Integrator
R74	22KΩ	½	340812	BTS-22K	Integrator
R75	33KΩ	½	340852	BTS-33K	Integrator
R76	100KΩ	½	340972	BTS-100K	Vertical MV Grid
R77	68KΩ	½	340932	BTS-68K	Vertical MV Cathode
R78	2.7Meg	½	341312	BTS-2.7Meg	Vertical MV Plate
R79	1Meg 20%	½	351212	BTS-1Meg	Vertical MV Grid
R80	8200Ω	½	340712	BTS-8200	Bias Network
R81	100KΩ	½	340972	BTS-100K	Vertical Discharge
R82	1500Ω	1		BTA-1500	Vertical MV Decoupling
R83	150KΩ	½	341012	BTS-150K	Vertical Retrace Blanking Network
R84	22KΩ	½	340812	BTS-22K	Vertical Linearity Control Shunt
R85	100KΩ	½	340972	BTS-100K	Voltage Divider
R86	8200Ω	½	340712	BTS-8200	Horizontal AFC Filter
R87	820KΩ 5%	½	331192	BTS-820K-5%	Horizontal AFC Grid
R88	150KΩ 5%	½	331012	BTS-150K-5%	Horizontal AFC Cathode
R89	150KΩ 5%	½	331012	BTS-150K-5%	Horizontal AFC Cathode
R90	82KΩ	½	340952	BTS-82K	Horizontal AFC Plate
R91	150KΩ	½	341012	BTS-150K	Voltage Divider
R92	2.7Meg 5%	½	331312	BTS-2.7Meg-5%	Voltage Divider
R93	100KΩ 5%	½	330972	BTS-100K-5%	Horizontal Osc. Grid
R94	75KΩ 5%	½	330942		Horizontal Osc. Plate
R95	4700Ω	½	340652	BTS-4700	Decoupling
R96	8200Ω	½	340712	BTS-8200	Horizontal Osc. Coil Shunt
R97	22KΩ	½	340812	BTS-22K	Horizontal Osc. Coil Shunt
R98	150KΩ 5%	½	331012	BTS-150K-5%	Horizontal Feedback Network
R99	47KΩ 5%	½	340892	BTS-47K-5%	Horizontal Feedback Network
R100	220KΩ	½	341052	BTS-220K	Horizontal Feedback Network
R101	120Ω	½	340772		Parasitic Suppressor
R102	1Meg	½	351212	BTS-1Meg	Horizontal Output Grid
R103	470KΩ 20%	1	381132	BTA-470K	Voltage Divider
R104	470KΩ 20%	1	381132	BTA-470K	Voltage Divider - See Note 1
R105	470KΩ 20%	1	381132		H. V. Filter
R106	1500Ω	5	394060-2	1 3/4A-1500	Voltage Divider - Wire Wound
R107	2200Ω	½	340572	BTS-2200	Filter
R108	75Ω	10	394060-3	1 3/4A-75	Filament Dropping - Wire Wound
R109	55Ω	10	394060-4		Filament Dropping - Wire Wound
R110	220Ω	½	340332	BTS-220	Filament String
R111	220K	½	341052	BTS-220K	Isolation

Note 1. Not used in all models.
Note 2. Some models use 82Ω resistor in this application.
Note 3. Some models use 2200Ω resistor in this application

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: EMERSON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T1	38Ω	335Ω	738039				Horizontal Output Trans.
		SEC. 2 22Ω Tap 110 & 176Ω					
		SEC. 3 0Ω					
T2	1070Ω	Tap 20Ω	738054				Vertical Output Trans.
T3A	12.3Ω		708036	DY-1	MD-1		Horizontal Deflection Coil
B	65Ω						Vertical Deflection Coil
T4	2.1KΩ		708048				Focus Coil

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: EMERSON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T5	1.98KΩ	3.4Ω	230Ω	1Ω	734058-1	A-3876 ①	A-2928 ①	R0-2 ①	① Drill new mounting hole.

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	EMERSON PART No.	JENSEN PART No.	QUAM PART No.	
SP1A	82Ω	3.4Ω	180072 ②		12E86S	② Used in Console Models
B	82Ω	3.4Ω	180070 ③		6E86S	③ Used in Table Models
C	82Ω	3.4Ω	180073 ③		6E86S	
	CONE DIA.	V. C. DIA.				
SP2A	11 1/4"	1"				
B	5 7/8"	9/16"				
C	5 7/8"	9/16"				

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA			NOTES
		PRI.	SEC.	EMERSON PART No.	MEISSNER PART No.	IRC PART No.	
L1	Antenna Coil	0Ω	0Ω				Part of Tner Part # 470636
L2	Fil. Choke	0Ω					Part of Tuner Part # 470636
L3	RF, Mixer Grid And Osc. Coil	0Ω					Part of Tuner Part # 470636
L4	Fil. Choke	0Ω					(Not Used In All Models) Part of Tuner Part # 470636
L5	1st Video IF	.6Ω	.1Ω				Part of Tuner Part # 470636
L6	1st Video IF Coupling	.1Ω	.6Ω	720104-1			
L7	RF Choke	3Ω		705016		CLA	3.3 Microhenries
L8	2nd Video IF	.4Ω	.4Ω	720098			
L9	3rd Video IF	.4Ω	.4Ω	720106			Includes Trap
L10	4th Video IF	.4Ω	.4Ω	720098			
L11	RF Choke	3Ω		705016		CLA	3.3 Microhenries
L12	Peaking	5.9Ω		708090			80 Microhenries
L13	4.5MC Trap	2Ω		708032			
L14	Peaking	5.9Ω		708090			80 Microhenries
L15	Peaking	12Ω		708095			180 Microhenries
L16	Peaking	17Ω		708114			440 Microhenries - Two Blue Dots
L17	1st Sound IF	4.3Ω		708093			35 Microhenries
L18	2nd Sound IF	1.5Ω		708032-1			
L19A	Disc. Trans.	2.1Ω	2.1Ω	708017			Used with Chassis Coded With "S " inside Triangle
B	Disc. Trans.			708018			
L20	Horiz. Osc. Coil	87Ω	32Ω	716052			
L21	Horiz. Phase Coil	58Ω		738037			
L22	Horiz. Lin.	28Ω		708052			
L23	Horiz. Size	45Ω		708055			

SELENIUM RECTIFIER

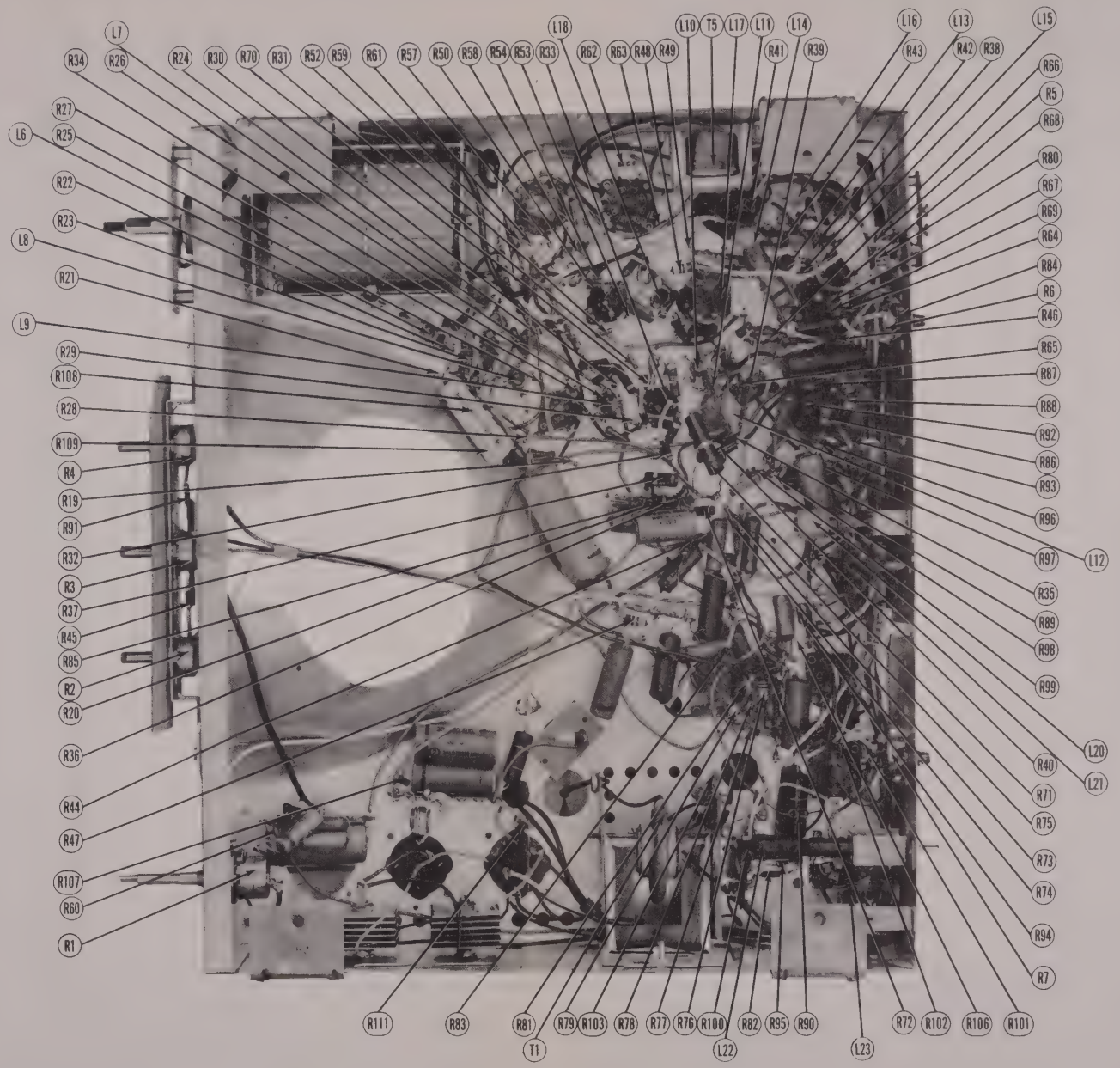
ITEM No.	RATING	REPLACEMENT DATA			NOTES
	CURRENT	EMERSON PART No.	SYLVANIA PART No.	SELETRON PART No.	
M1	.150ADC	817015	NF-5	6Q4	
M2	.150ADC	817015	NF-5	6Q4	
M3	.010ADC	817000-1		8Y1	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			EMERSON PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M4	3AG	.250A	808170		318.250		

MISCELLANEOUS

ITEM No.	PART NAME	EMERSON PART No.	NOTES
M5	RF Tuner	470636	
M6	Crystal	817018	Video Det. (1N-60)
M7	Ballast Resistor	397036	Complete Assembly
M8	Ion Trap	708061	
A8	Trimmer	900064	1st Sound IF (3-35MMF)
B3	Trimmer	900073	Horizontal Drive (45-400MMF)
	Safety Glass	635028	Model 673B
	Glass Panel	520135	Models 660B, 664B
	Mask	411009	Models 673B
	Mask	410982	Models 660B, 664B
	Knob	460173	Channel Selector (Model 673B)
	Knob	460177	Channel Selector (Models 660B, 664B)
	Knob	460174	Fine Tuning (Model 673B)
	Knob	460178	Fine Tuning (Models 660B, 664B)
	Knob	460171	Contrast (Model 673B)
	Knob	460175	Contrast (Models 660B, 664B)
	Knob	460172	Volume (Model 673B)
	Knob	460176	Volume (Models 660B, 664B)



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

EMERSON
MODEL 672B (Ch. 120097-B)

EMERSON
MODEL 672B (Ch. 120097-B)

EMERSON MODEL 672B

TRADE NAME	Emerson, Model 672B (Ch. 120097-B)
MANUFACTURER	Emerson Radio & Phonograph Corp., 111 8th Ave., New York 11, New York
TYPE SET	AC Operated Combination Phono-Radio, Superheterodyne Receiver with Loop Ant.
TUBES (FIVE)	Types 12BE6 Converter, 12BA6 IF Amp., 12AT6 Det-AVC-AF, 50B5 Power Output, 35W4 Rectifier
POWER SUPPLY	105-125 Volts AC
RATING	.26 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning gang fully closed and set pointer to the calibration dot near the left hand end of the dial backplate. Use isolation transformer if available. If not connect a .1MFD capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (Grid) of 12BE6 (V1) Low side to B-.	455KC (400~ Mod)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2		Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver Adjust for maximum output.
3.		Loop	1400Kc	Tune for max. output.	"	A6	"

FOR SERVICE INFORMATION ON RECORD CHANGER UNIT SEE MISC. SERIES 700F 33/45 IN PHOTOFACT SET 75 FOLDER 11 OR RECORD CHANGER MANUAL CM-3.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Converter	800525	12BE6	7CH	
V2	IF Amplifier	800524	12BA6	7BK	
V3	Det.-AVC-AF	800523	12AT6	7BT	
V4	Power Output	800527	50B5	7BZ	
V5	Rectifier	800526	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: EMERSON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	50	150	925163	PRS150/50-50		EDL5515		TVA-2453	Filter Red
B	50	150							Filter Green
C2	.1	200	920040	P288-1	DF-104	PTE4P1		2TM-P1	AVC Filter
C3	.05	400	920030	P488-05	DF-503	PTE4S5		4TM-S5	Phono Isolation
C4A	220		470310	SI220	D6-221	5W5T25	GP2K-220		Diode RF Filter
B	2000			BPD-002	DD-202	PTE4S1	801-002	34C3	Audio Coupling
C	220			SI220	D6-221	5W5T25	GP2K-220		AF Amp. Plate
D	5000			BPD-005	DD-502	PTE6D5	811-005		Audio Coupling
C5	.01	400	923104	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Output Plate
C6	.05	400	920105	P488-05	DF-503	PTE4S5		4TM-S5	Tone Comp.
C7	.05	400	920030	P488-05	DF-503	PTE4S5		72P51	Line Isolation
C8	.05	400	920030	P488-05	DF-503	PTE4S5		4TM-S5	Line Filter
C9	2.2				TCZ-2.2				Ext. Ant. Coupling

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1	500KΩ	½	510069-1				Volume Control—On-Off—Radio-Phono SW

RESISTORS

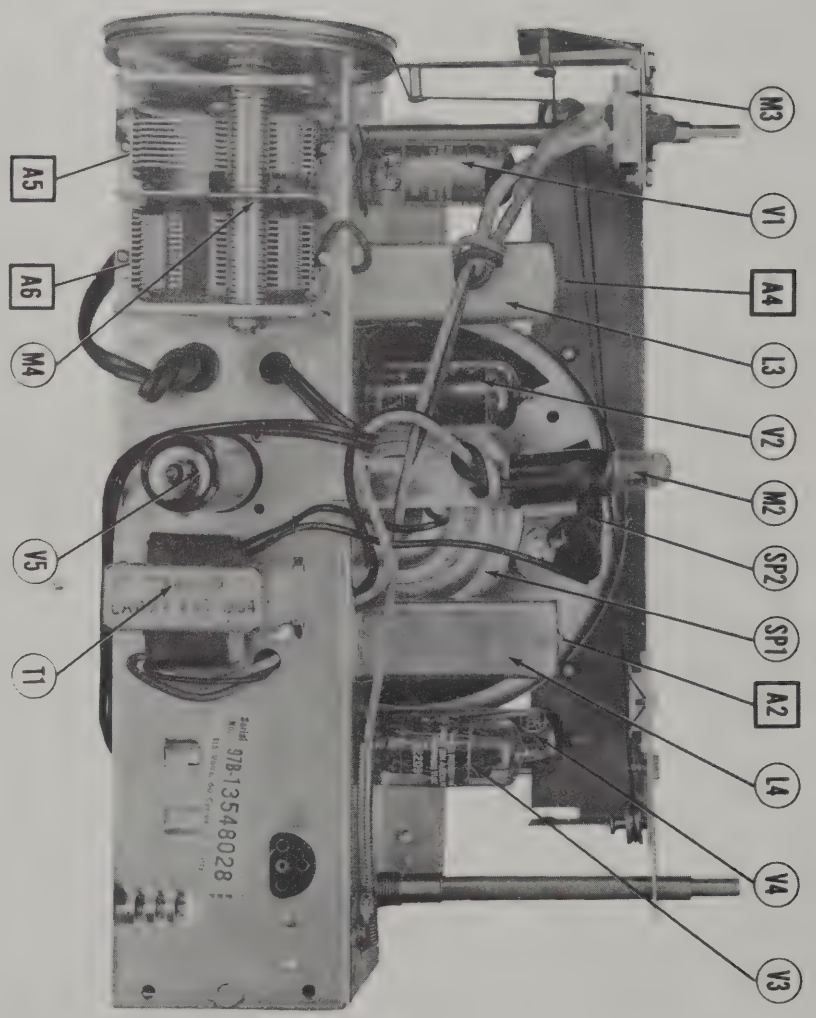
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	IRC PART No.	IDENTIFICATION CODES
R2	15Meg	½	351490	BTS-15Meg	AVC Network - See Note 1
R3	22KΩ	½	340810		Osc. Grid
R4	120Ω	½	340270	BTS-120	IF Amp. Cathode
R5	3.3Meg	½	351330	BTS-3.3Meg	AVC Network
R6	10Meg	½		BTS-10Meg	AF Amp. Grid - See Note 2
R7	470KΩ	½	351130	BTS-470K	AF Amp. Plate
R8	470KΩ	½	351130	BTS-470K	Output Grid
R9	150Ω	½	340290	BTS-150	Output Cathode
R10	1000Ω	2		BTB-1000	Filter
R11	39Ω	1	370150		Rectifier Ballast

Note 1 Not used in all models
Note 2 Some models use 15Meg Resistor in this application

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: EMERSON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T1	3KΩ	3.3Ω	230Ω Tap 5.4Ω	.6Ω				R0-3	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA EMERSON PART No.	VIKING PART No.	QUAM PART No.	INSTALLATION NOTES
SP1	FIELD	V. C. IMP.	180052	5J4		
	PM	3.3Ω				
SP2	CONE DIA.	V. C. DIA.				
	4½"	9/16"				

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA EMERSON PART No.	REPLACEMENT DATA MEISSNER PART No.
L1	Loop Ant.	3.6Ω		700047	
L2	Osc. Coil	.6Ω	5.5Ω	716044	14-1073
L3	1st If	21Ω	21Ω	720055	16-6758
L4	2nd IF	21Ω	21Ω	720055	16-6758

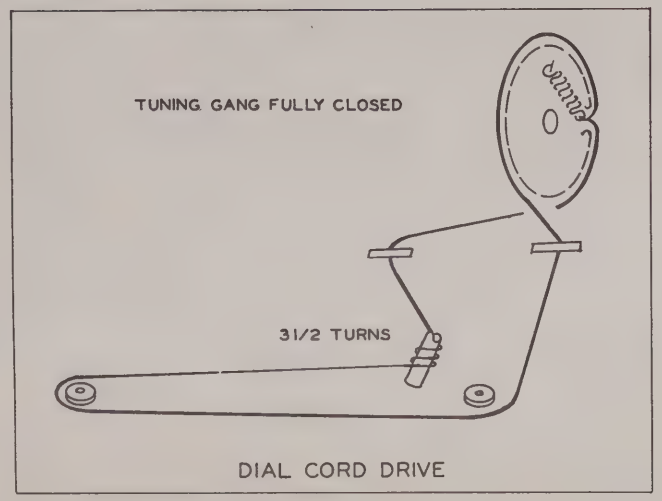
PHONO CARTRIDGE and NEEDLE

ITEM No.	REPLACEMENT DATA EMERSON PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	SHURE PART No. CARTRIDGE	SHURE PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE	REMARKS
M1		GC-AG-J	G-AG	WC36B	A56U	43	0-2 or S-2	

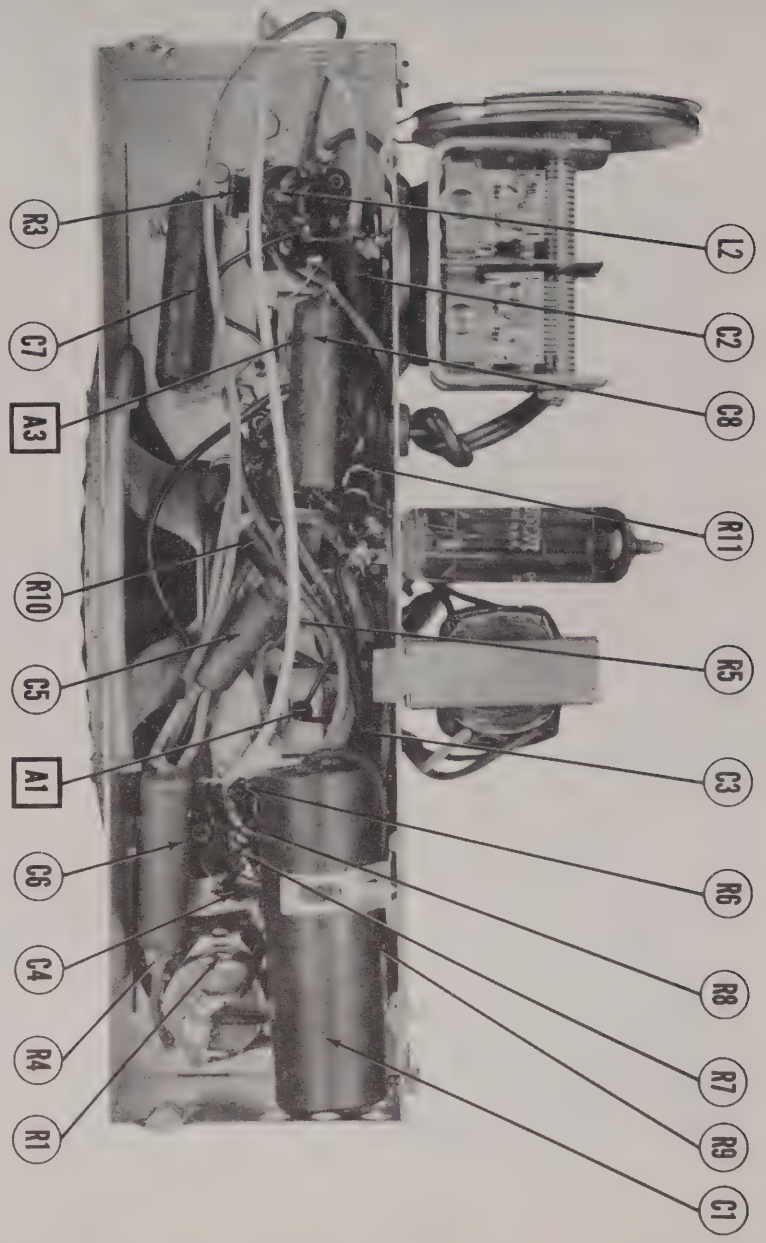
ASTATIC, SHURE AND ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDEGES LISTED.

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA EMERSON PART No.	REPLACEMENT DATA	NOTES
M2	Bayonet	608	.15	Brown	807000		Type #47

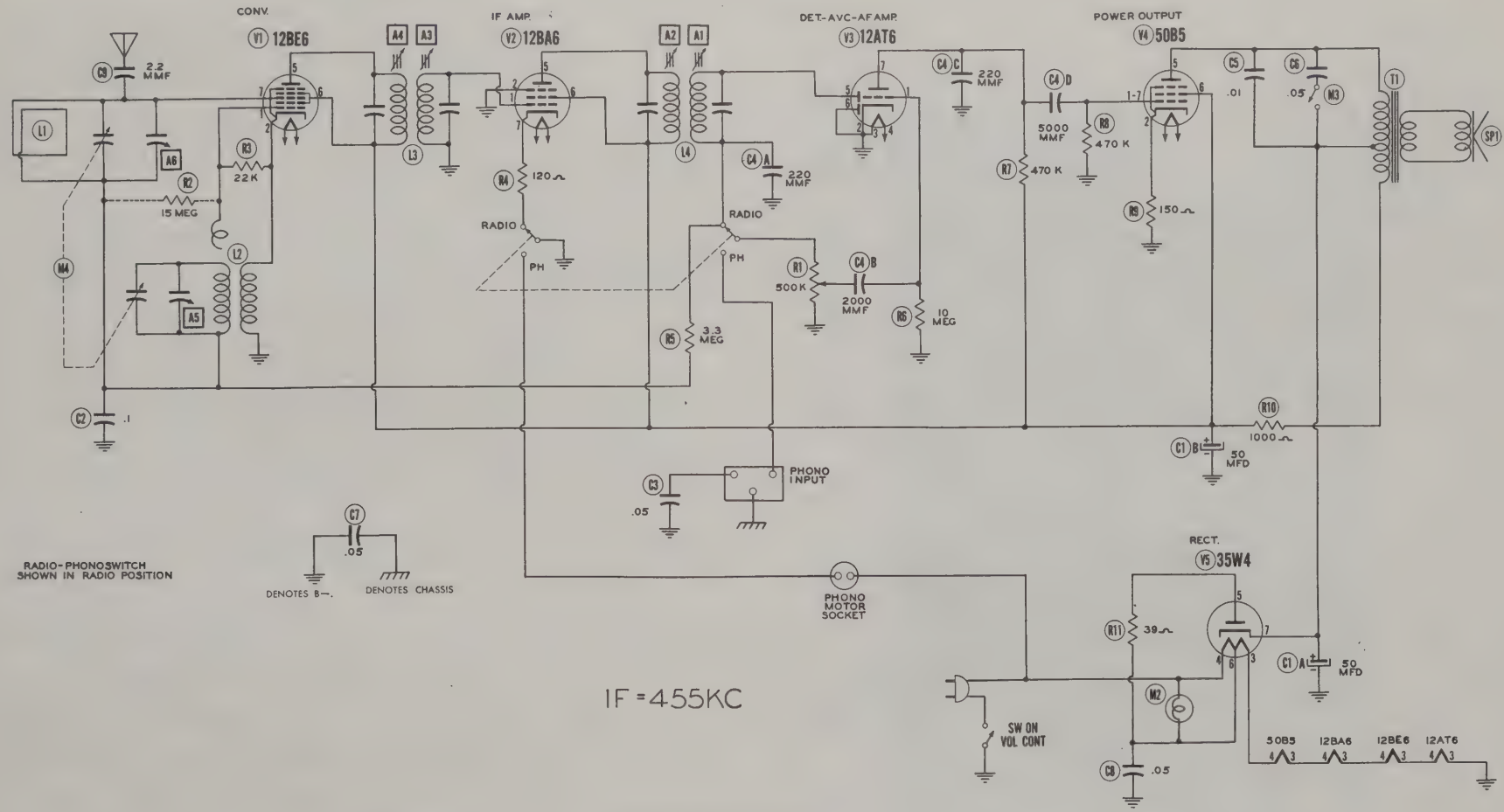


CHASSIS—BOTTOM VIEW



EMERSON MODEL 672B

EMERSON MODEL 672B



RADIO-PHONO SWITCH IN RADIO POSITION

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	§-7.8VDC	0V	12VAC	25VAC	85VDC	85VDC	-.3VDC
V 2	12BA6	0V	0V	25VAC	37VAC	85VDC	85VDC	1.4VDC
V 3	12AT6	-.6VDC	0V	0V	12VAC	-.3VDC	0V	40VDC
V 4	50B5	0V	6VDC	37VAC	85VAC	97VDC	85VDC	0V
V 5	35W4	105VDC	-.2VDC	85VAC	117VAC	100VAC	108VAC	105VDC

§ TAKEN WITH VACUUM TUBE VOLTMETER

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	.6Ω	13Ω	25Ω	†1KΩ	†1KΩ	3.8Meg
V 2	12BA6	21Ω	0Ω	25Ω	38Ω	†1KΩ	†1KΩ	120Ω
V 3	12AT6	10Meg	0Ω	0Ω	13Ω	500KΩ	0Ω	†470KΩ
V 4	50B5	470KΩ	150Ω	38Ω	90Ω	†225Ω	†1KΩ	470KΩ
V 5	35W4	†5.4Ω	3.8Meg	90Ω	120Ω	160Ω	115Ω	50KΩ

† MEASURED FROM PIN 7 OF V5

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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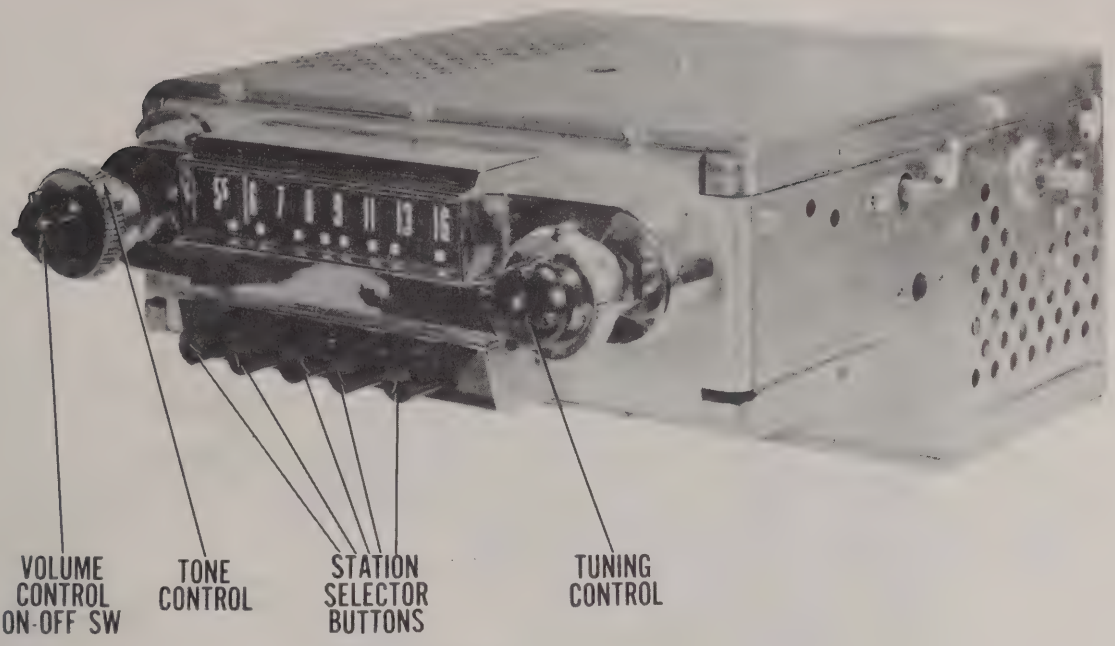
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

FORD
MODEL 1MF (1A-18805-A2)



FORD
MODEL 1MF (1A-18805-A2)

FORD MODEL 1MF (1A-18805-A2)

TRADE NAME	Ford, Model 1MF (1A-18805-A2)
SUPPLIER	Ford Motor Car Co., Detroit, Michigan
TYPE SET	Battery Operated Custom-Built Superheterodyne Automotive Receiver
TUBES (SIX)	Types 6SK7GT RF Amp., 6SA7GT Converter, 6SK7GT IF Amplifier, 6SQ7GT Det.-AVC-AF, 6V6GT Power Output, 6X5GT Rectifier
POWER SUPPLY	6 Volt Storage Battery RATING 6 Amp. @ 6.3 Volts DC
TUNING RANGE—BROADCAST	540-1610KC

ALIGNMENT INSTRUCTIONS

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 8 (Grid) of 6SA7GT (V2). Low side to chassis.	265KC (400~ Mod.)	Tuning gang fully out.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	See fig. 1	High side to antenna receptacle. Low side to chassis.	1608KC	"	"	A5, A6, A7	Back out tuning cores (A8, A9, & A10), until slugs project 1 3/8" out of the coil. Adjust A5, A6, & A7 for maximum output.
3.	"	"	1306KC	Move tuning carriage in 21/64 in. from fully out.	"	A8, A9, A10	Adjust for maximum output. Repeat steps 2 & 3 until no further improvement can be made.
4.	"	"	600KC (4 micro volts output)	Tune for max. output.	"	Sensitivity control	Adjust for 1 watt output. (1.79 Volts on output meter).
5.	After set is reinstalled, fully extend the antenna & tune in a weak station near 1400KC. Adjust A7 for maximum output.						

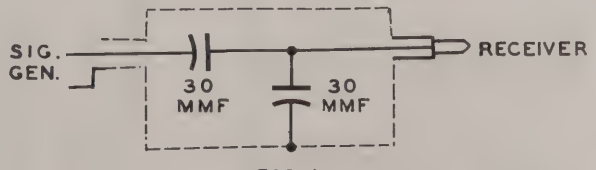


FIG. 1

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	RF Amplifier	6SK7GT	6SK7GT	8N	
V2	Converter	6SA7GT	6SA7GT	8AD	
V3	IF Amplifier	6SK7GT	6SK7GT	8N	
V4	Det.-AVC-AF	6SQ7GT	6SQ7GT	8Q	
V5	Power Output	6V6GT	6V6GT	7AC	
V6	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	10	350	23A485677	AFH42J8B		UP15S135C		TVL-3630	▲ Filter
B	15	350							■ Filter
C	20	25							Output Cathode
C2	.006	100	8A4529	P688-006	D6-562	PTE6D6	811-005	6TM-D6	RF Coupling
C3	120	500	21R6619	1469-0001	TCZ-120	5R5T1	GP2K-120	MS-31	Fixed Trimmer *
C4	.05	400	8R14791	P488-05	DF-503	PTE4S5		4TM-S5	Decoupling
C5	30	500	21R6665	SI30	D6-300	5W5Q3	GP1K-30	MS-43	RF Coupling
C6	250	500	21R6662	1468-00025	D6-251	5W5T25	GP2K-250	1FM-325	Fixed Trimmer
C7	100		21R6631	SI100	D6-101	5W5T1	GP1K-100	19C11	Fixed Trimmer
C8	47		21R6513	SI47	D6-470	5W5Q5	GP1K-47	19C25	Osc. Grid Cap.
C9	43						NPOM-43		Fixed Trimmer
C10	.1	100	8R472035	P288-1	DF-104	PTE4P1		2TM-P1	AVC Filter
C11	.05	400	8R14791	P488-05	DF-503	PTE4S5		4TM-S5	IF Amp. Screen
C12	.01	100	8R472754	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Audio Coupling
C13	47		21R6513	SI47	D6-470	5W5Q5	GP1K-47	19C25	IF Coupling
C14	.01	400	8R23690	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Audio Coupling
C15	.003	400	8R490437	P688-003	D6-302	PTE6D3	GP2M-003	6TM-D3	Tone Comp.
C16	.02	100	8R51209	P488-02	DF-203	PTE4S2		2TM-S2	Tone Comp.
C17	250	500	21R6648	1468-00025	D6-251	5W5T25	GP2K-250	1FM-325	Output Grid
C18	.004	400	8K71909	P688-004		PTE6D4	GP2M-004	6TM-D4	Output Plate
C19	.008	1600	8R472215			PTE16D8		MB-D8	Buffer
C20	.5	100	8K17028	P185-5				68P20	Hash Filter
C21	.5	100	8K17028	P185-5				68P20	Hash Filter

* Some models use 100MMF in this application

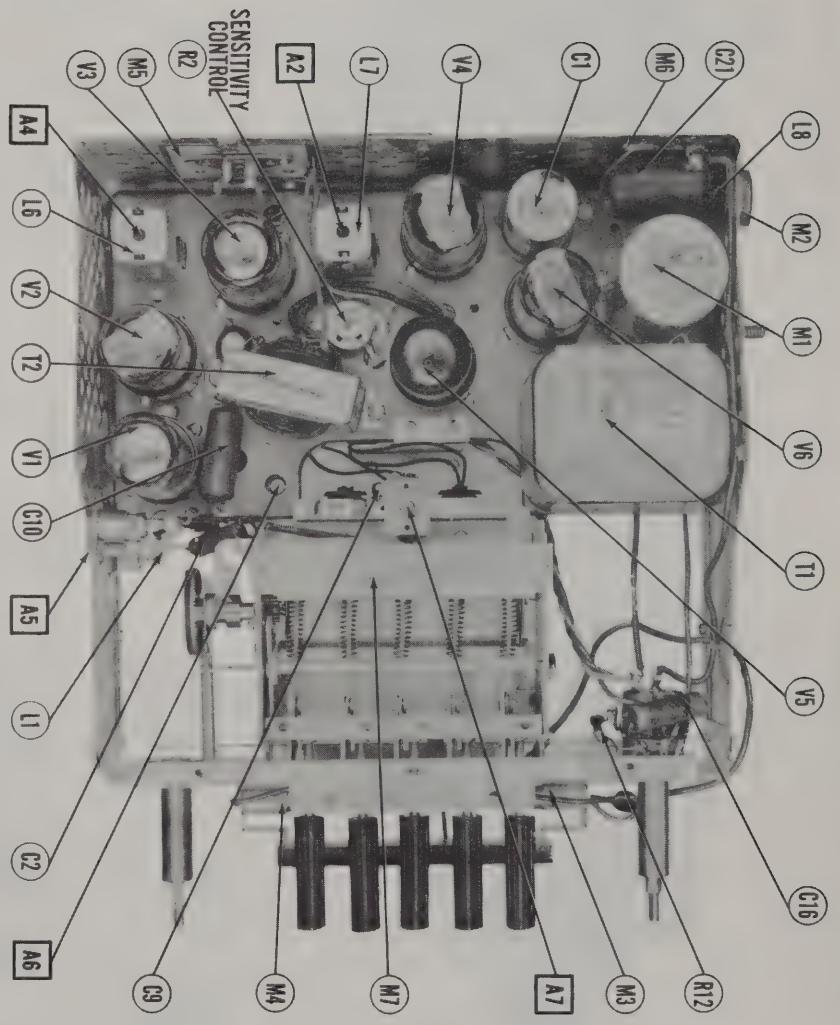
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	1Meg	1/2	18B501153				Tone Control - Front
B	250KΩ						Volume Control & SW - Tapped @ 200KΩ - Rear
R2	125Ω	1	18K591265				Sensitivity Control - wire wound

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	IRC PART No.	IDENTIFICATION CODES
R3	470KΩ	1/2	6R6032	BTS-470K	AVC Network
R4	6800Ω	1	6R490492	BTA-6800	RF Amp. Plate
R5	6800Ω	1	6R6287	BTA-6800	Screen Loading
R6	220KΩ	1/2	6R6015	BTS-220K	Conv. Grid

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MOTOROLA PART No.	IRC PART No.	
R7	47KΩ	½	6R6056	BTS-47K	Osc. Grid
R8	47KΩ	½	6R6056	BTS-47K	IF Amp. Screen
R9	47KΩ	½	6R6056	BTS-47K	Diode Filter
R10	2.2Meg	½	6R3927	BTS-2.2Meg	AVC Network
R11	1Meg	½	6R6046	BTS-1Meg	AVC Network
R12	12KΩ	½	6R6394	BTS-12K	Tone Compensation
R13	4.7Meg	½	6R2122	BTS-4.7Meg	AF Amp. Grid
R14	1Meg	½	6R6046	BTS-1Meg	AF Amp. Plate
R15	220KΩ	½	6R6015	BTS-220K	Output Grid
R16	270Ω	1	6R6336	BTA-270	Output Cathode
R17	2200Ω	1	6R6006	BTA-2200	Filter
R18	.47Ω	½	17K488266	BW-½-.47	Rectifier Filament - Wire Wound
R19	.27Ω	1	17K488267	BW-1-.27	Filament String - Wire Wound
R20	56Ω	½	6R5614		Hash Suppressor
R21	56Ω	½	6R5614		Hash Suppressor

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	6.3VDC @ 2.8A	460VCT .048ADC			25C591264			VT-1 ②

② Drill new mounting holes

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	4.8KΩ	3Ω	650Ω	.7Ω	25B501909	A-3877 ①	A-2930 ①	R0-9 ①	① Drill one new mounting hole

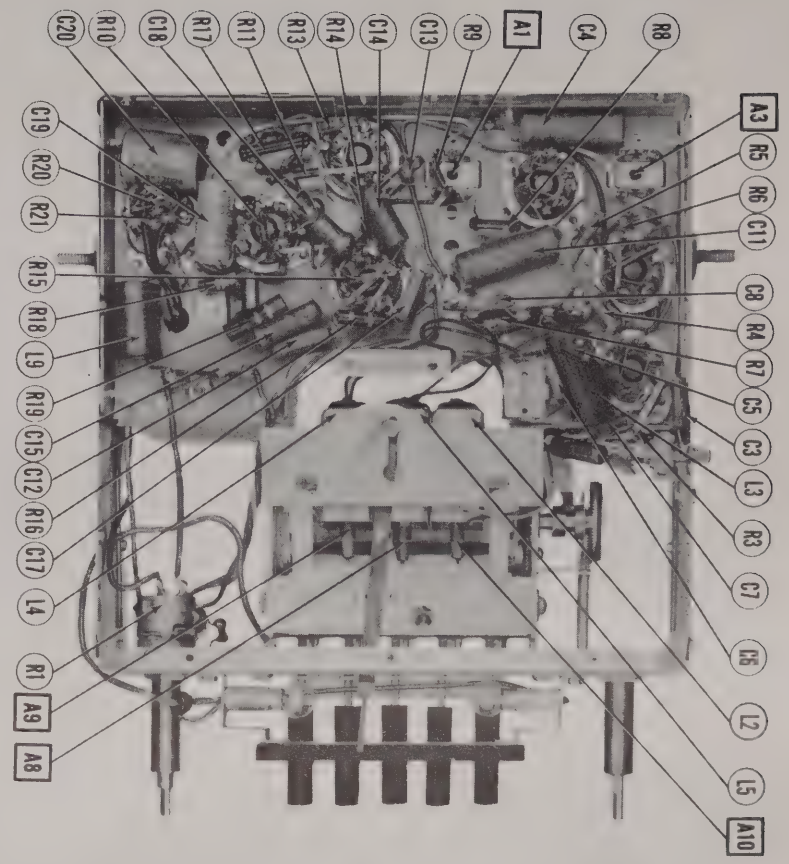
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			MOTOROLA PART No.	VIKING PART No.	QUAM PART No.	
	FIELD	V. C. IMP.				
SP1	PM	3Ω	50C502806 or 50C501741 or 50C501967	69J9	69A2	
	CONE DIA.	V. C. DIA.				
SP2	6"X9"	1"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	MOTOROLA PART No.	MEISSNER PART No.	
L1	Ant. Hash Choke	2.3Ω		24K592197		
L2	Ant. Coil	12Ω				Part of AT-81 Tuner Part No. 51D501008
L3	IF Trap	Inf.		24A591317		Two Inductively Coupled Windings
L4	RF Coil	12Ω				Part of AT-81 Tuner Part No. 51D501008
L5	Osc. Coil	1.3Ω	3.7Ω			Part of AT-81 Tuner Part No. 51D501008
L6	1st IF	35Ω	35Ω	24B580193		
L7	2nd IF	40Ω	38Ω	24K591267		
L8	Hash Choke	0Ω		24A501320		
L9	Hash Choke	.2Ω		24A472535		

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FRE-QUENCY	REPLACEMENT DATA				INSTALLATION NOTES
				MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	RADIART PART No.	
M1	INT	6.3	115Ω	48B3333	A-200	5342	5342	

PUSH-BUTTON ADJUSTMENTS

Any push button may be adjusted to any station within the receiver's tuning range. Tune in the desired station very carefully. Turn the pushbutton , (with fingers), one complete turn counter clockwise. Press the button all the way in, and then release it. Tighten the pushbutton, (with fingers), repeat the procedure with each button.

FUSES

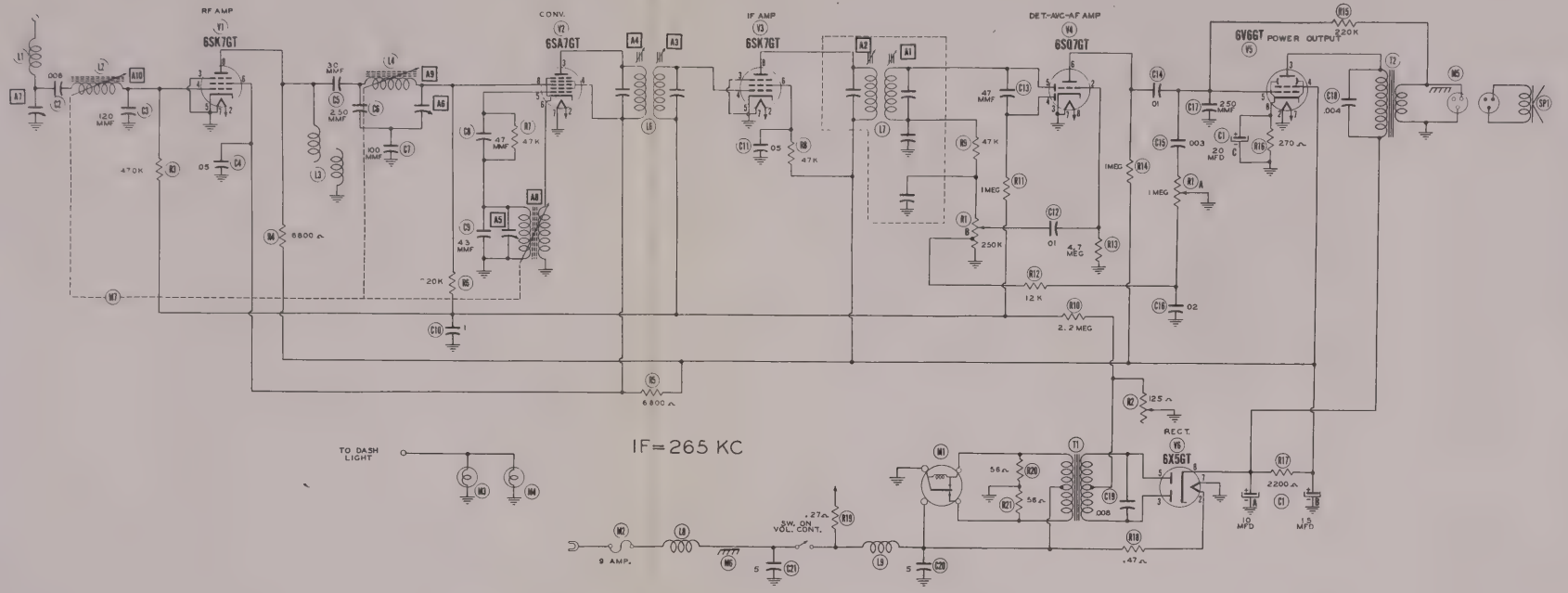
ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			MOTOROLA PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M2	SFE	9Amp.	6SK16248	9K501325	307009	155009A	

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					MOTOROLA PART No.		
M3	Bayonet	6-8	.2				Type #55
M4	Bayonet	6-8	.2				Type #55

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M5	Spark Plate	1A591220	
M6	Spark Plate	1A591221	
M7	Tuning Unit	51D501008	
A6	Trimmer	20A591272	RF Adj.
A7	Trimmer	20B591269	Ant. Adj.
	Knob	1X501261	Tuning
	Knob	36B500598	Tone
	Knob	1X501262	Volume



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SK7GT	0V	5.8VDC	0V	-.3VDC -.6VDC	0V	90VDC	0V	105VDC
V 2	6SA7GT	0V	5.8VDC	90VDC	90VDC	+-10.5VDC	0V	0V	-.3VDC -.7VDC
V 3	6SK7GT	0V	5.8VDC	0V	-.3VDC -.6VDC -.3VDC	0V	75VDC	0V	155VDC
V 4	6SQ7GT	0V	-.5VDC	0V	-.5VDC	-.3VDC	45VDC	0V	5.8VDC
V 5	6V6GT	0V	5.8VDC	190VDC	155VDC	0V	-.5VDC	0V	8.4VDC
V 6	6X5GT	0V -7.8VDC	5.7VDC	240VAC	0V	240VAC	-.6VDC -.6VDC	0V	305VDC

‡ TAKEN WITH VACUUM TUBE VOLTMETER

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SK7GT	0Ω	.5Ω	0Ω	2.7Meg	0Ω	19KΩ	0Ω	19KΩ
V 2	6SA7GT	0Ω	.5Ω	19KΩ	19KΩ	47KΩ	1.3Ω	0Ω	2.4Meg
V 3	6SK7GT	0Ω	.5Ω	0Ω	2.2Meg	0Ω	130KΩ	0Ω	12.2KΩ
V 4	6SQ7GT	0Ω	4.7Meg	0Ω	2.2Meg	200KΩ	1Meg	0Ω	.5Ω
V 5	6V6GT	.1Ω	.5Ω	†650Ω	†2.2KΩ	220KΩ	4.7Meg	0Ω	270Ω
V 6	6X5GT	0Ω 135Ω	.7Ω	350Ω 475Ω	Inf.	350Ω 475Ω	2.2Meg	0Ω	130KΩ

† MEASURED FROM PIN 8 OF V6

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Battery voltage maintained at 6.3 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

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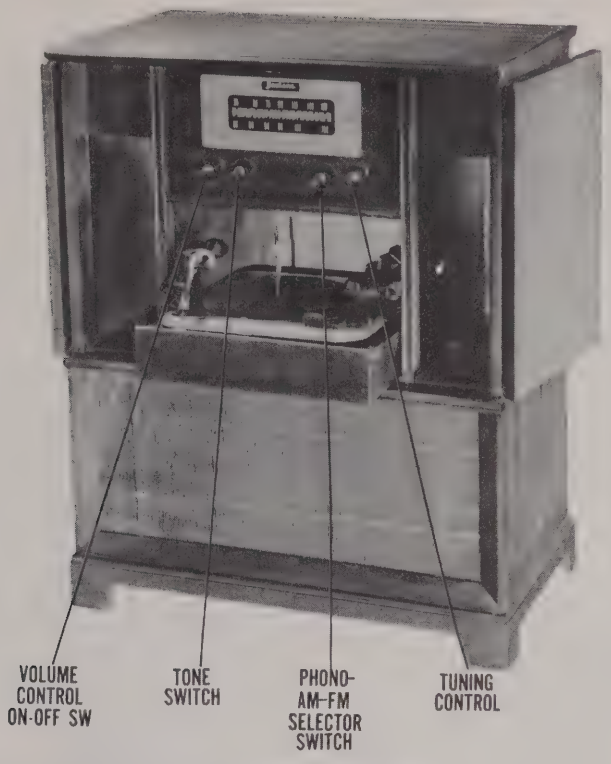
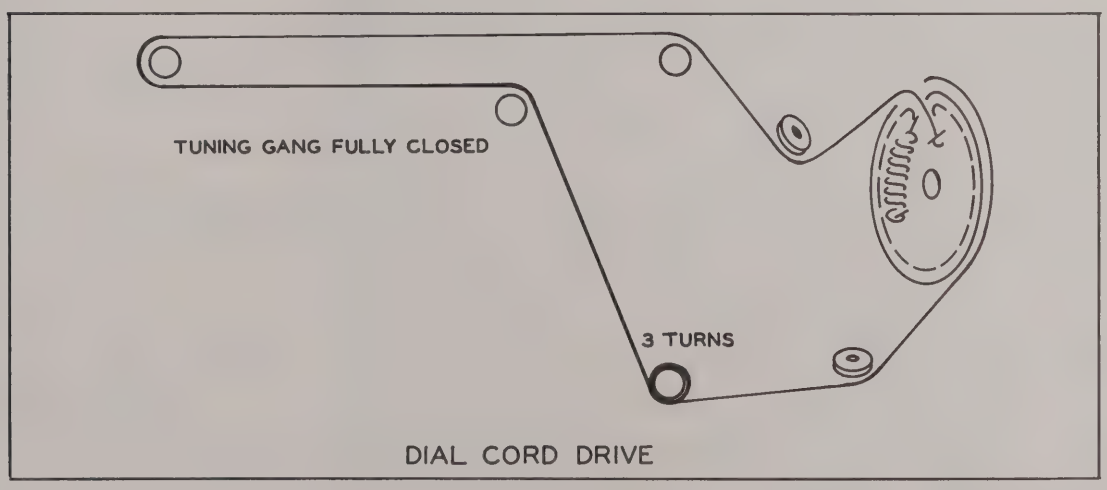
JACKSON
MODEL 350



JACKSON MODEL 350

TRADE NAME	Jackson, Model 350		
MANUFACTURER	Jackson Ind., Inc., 58E. Cullerton St., Chicago, Ill.		
TYPE SET	AC Operated Combination Phono-Radio, AM-FM Superheterodyne Receiver		
TUBES (EIGHT)	Types 12AT7 FM RF Amp. - Mixer, 6BE6 FM Osc. -AM Conv., 6BA6 1st IF Amp., 6BA6 2nd FM IF Amp., 6AL5 Ratio Det., 6AT6 Det.-AVC-AF, 6AQ5 Power Output, 6X4 Rectifier		
POWER SUPPLY	105-125 Volts AC	RATING	.48 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1600KC	FREQ. MOD.	88-108MC

FOR SERVICE INFORMATION ON RECORD CHANGER SEE V-M MODEL 950 IN PHOTOFACT SET 107 FOLDER 13 OR RECORD CHANGER MANUAL CM-3



DIAL CORD DRIVE

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

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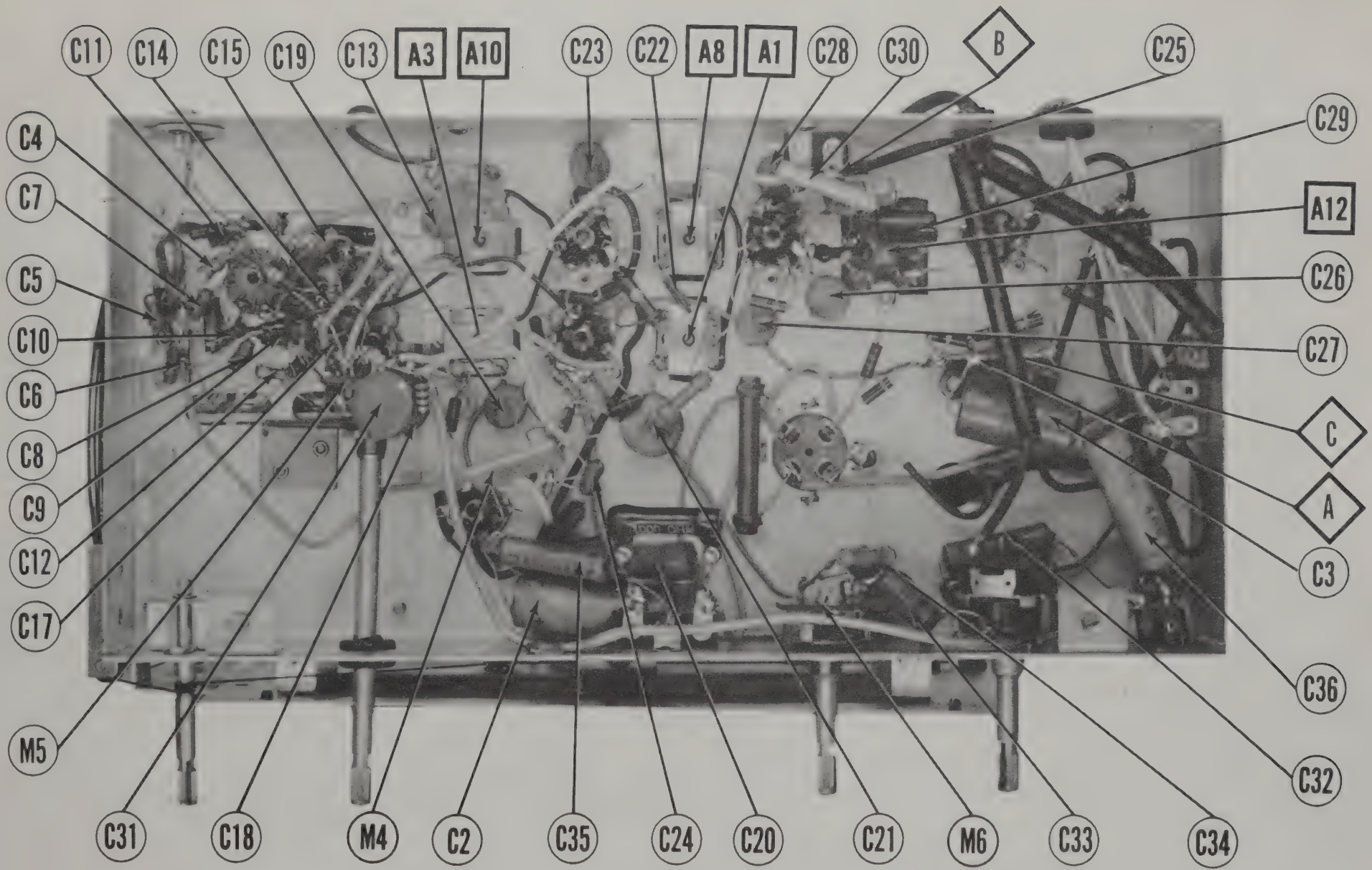
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A10
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A8
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C26
C27
C
A
C3
C36
C32
C34
C33
M6
C21
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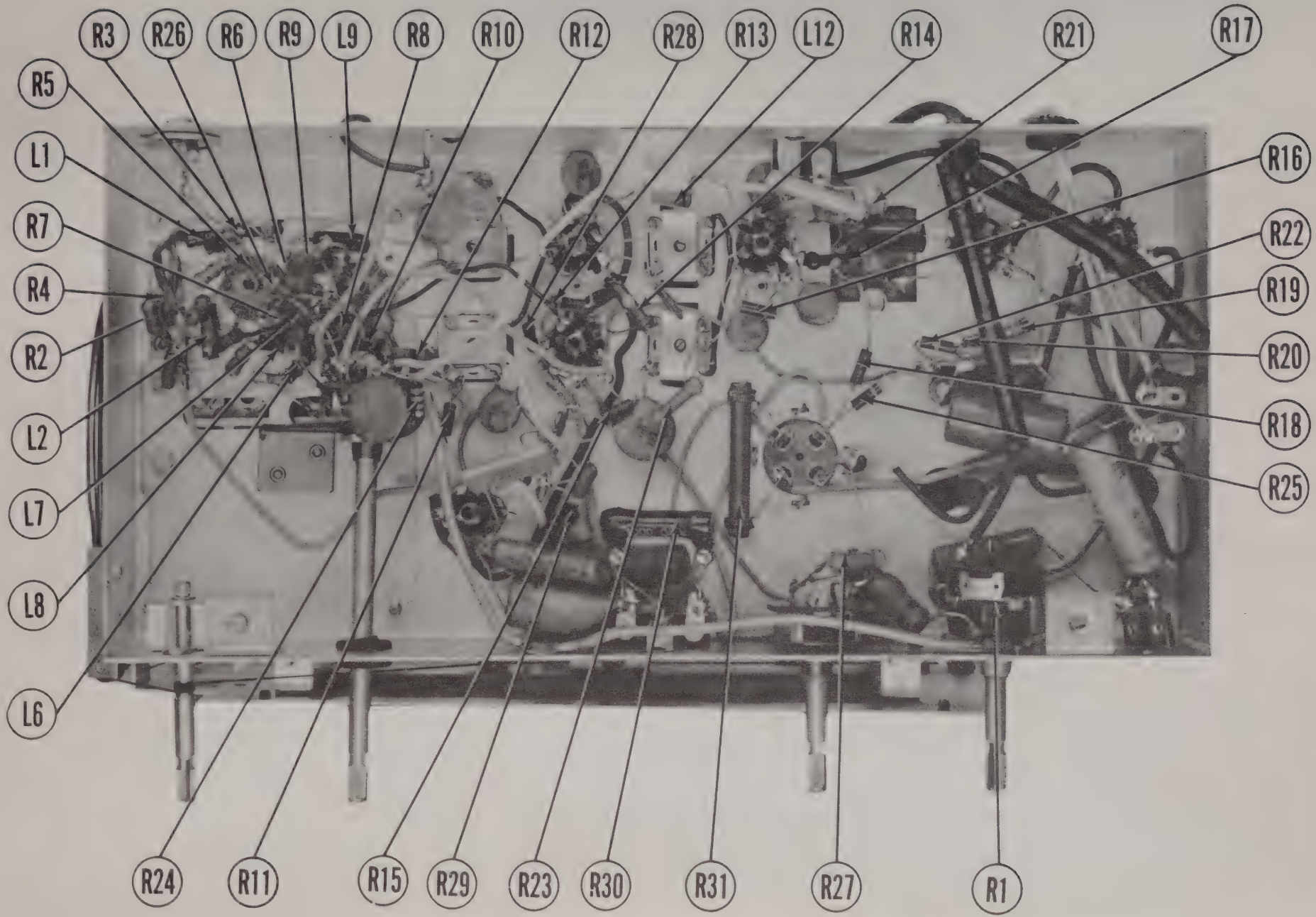
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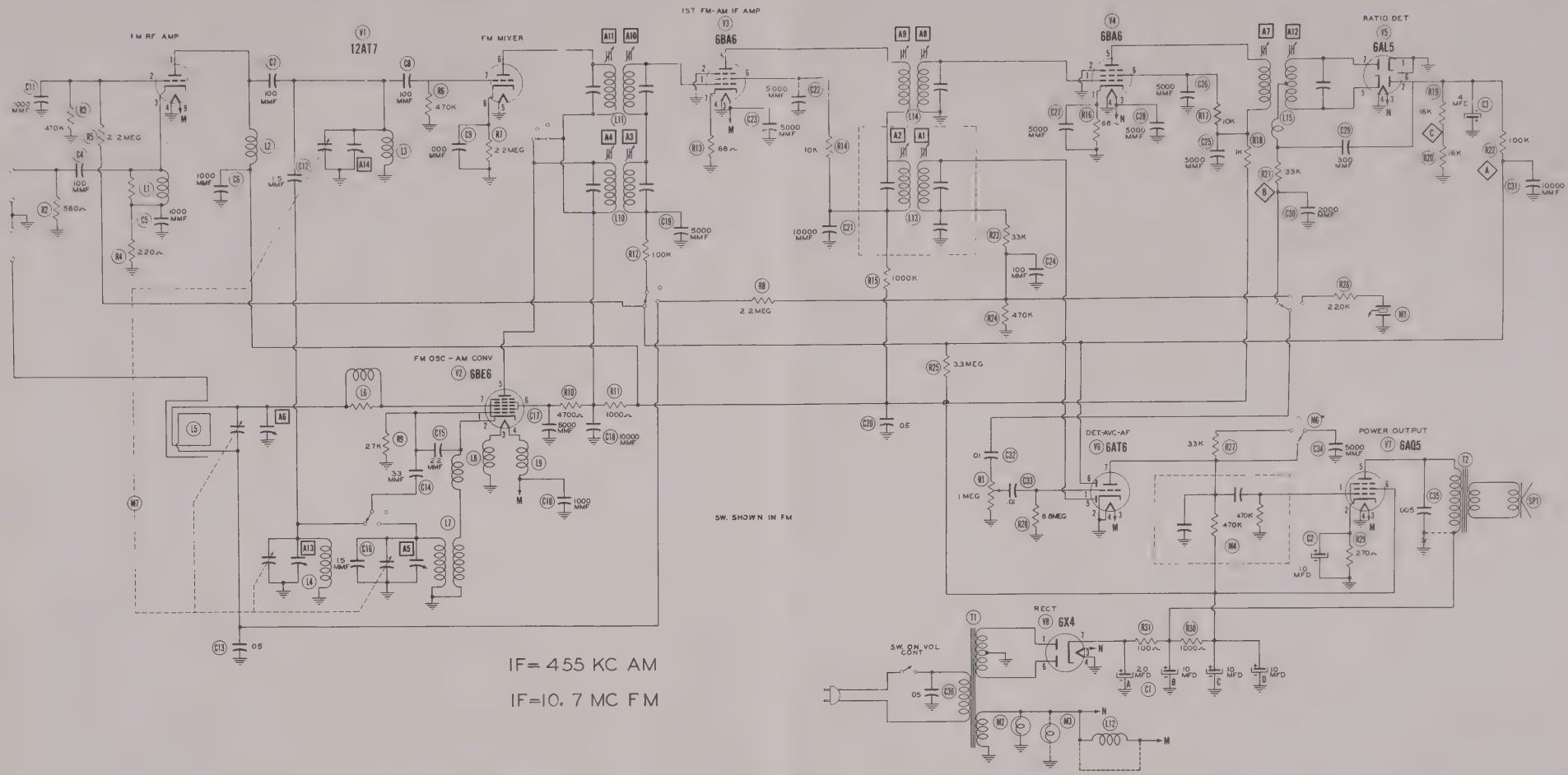

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	12AT7	180VDC	0V	1.7VDC	0V	0V	145VDC	0V	13.6VDC #3.3VDC	6.3VAC
V 2	6BE6	#6-4.8VDC #8-10VDC	0V	0V	6.3VAC	145VDC	90VDC	‡-1.6VDC ‡-.1VDC		
V 3	6BA6	-.1VDC	0V	6.3VAC	0V	145VDC	100VDC	1VDC		
V 4	6BA6	0V	0V	6.3VAC	0V	145VDC	100VDC	1VDC		
V 5	6AL5	0V	-.8VDC	6.3VAC	0V	-.2VDC	0V	-.2VDC		
V 6	6AT6	-.8VDC	0V	6.3VAC	0V	-.3VDC	‡ -.2VDC # .2VDC	55VDC		
V 7	6AQ5	0V	8VDC	6.3VAC	0V	200VDC	180VDC	0V		
V 8	6X4	215VAC	0V	6.3VAC	0V	0V	215VAC	220VDC		

§ TAKEN WITH VACUUM TUBE VOLTMETER

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	12AT7	†1.1KΩ	470KΩ	220Ω	0Ω	0Ω	†2.1KΩ	470KΩ	2.2KΩ	.1Ω
V 2	6BE6	22KΩ ‡ 200KΩ	1.3Ω	.3Ω	.3Ω	†2.1KΩ	†6.8KΩ	3.7Meg		
V 3	6BA6	#2.7Meg	0Ω	.1Ω	0Ω	†2.1KΩ	†12KΩ	68Ω		
V 4	6BA6	.8Ω	0Ω	.1Ω	0Ω	†2.1KΩ	†12KΩ	68Ω		
V 5	6AL5	0Ω	32KΩ	.1Ω	0Ω	Inf.	0Ω	Inf.		
V 6	6AT6	6.8Meg	0Ω	.1Ω	0Ω	500KΩ	95KΩ	†470KΩ		
V 7	6AQ5	470KΩ	270Ω	.1Ω	0Ω	†580Ω	†1.1KΩ	470KΩ		
V 8	6X4	130Ω	0Ω	.1Ω	0Ω	Inf.	130Ω	40KΩ		

‡ TAKEN IN FM POSITION
# TAKEN IN AM POSITION
† MEASURED FROM PIN 7 OF V6

THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning gang fully closed and set the pointer 1 15/16 ins. to the right of the left hand edge of the metal portion of the dial backplate.

AM ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (Grid) of 6BE6 (V2) Low side to chassis	455KC (400∿ Mod)	AM (center)	Tuning gang fully open.	Across voice coil.	A1, A2,	Adjust for maximum output.
2.	"	"	1600KC	"	"	"	A5	"
3.		Loop	1400KC	"	Tune for max. output.	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust max. output.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	.1MFD	High side to pin 1 (Grid) of 6BA6 (V3) Low side to chassis	10.7MC (unmod.)	FM (CW)	Tuning gang fully open.	DC probe to point (A). Common to chassis.	A7, A8, A9	Adjust for maximum deflection.
5.	"	High side to pin 7 (Grid) of 12AT7 (V1) Low side to chassis	"	"	"	"	A10, A11	"
6.	"	"	"	"	"	DC probe to point (B). Low side to point (C).	A12	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	SCOPE CONNECT	ADJUST	REMARKS
4.	.1MFD	High side to pin 1 (Grid) of 6BA6 (V3) Low side to chassis	10.7MC (450KC SWP)	FM (CW)	Point of non-interference	Vert. amp. to point (A). Low side to chassis.	A7, A8, A9	Disconnect stabilizor capacitor C3. Adjust for maximum amplitude and symmetry as per fig. 1.
5.	"	High side to pin 7 (Grid) of 12AT7 (V1). Low side to chassis	"	"	"	"	A10, A11	"
6.	"	"	"	"	"	Vert. amp. to point (B) Low side to chassis.	A12	Reconnect capacitor C3. Adjust A12 so 10.7MC occurs at center of crossover lines as per fig. 2. SLIGHTLY retouch A7 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	300Ω carbon resistor	High side thru 300Ω to ungrounded FM ant. terminal.	108.5MC (unmod.)	FM	Tuning gang fully open.	DC probe to point (A). Common to chassis.	A13	Adjust for maximum deflection.
8.	"	"	105MC	"	Tune for max. deflection.	"	A14	"

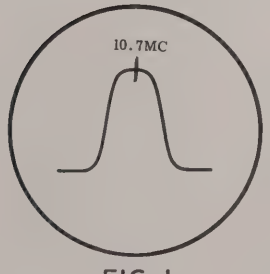


FIG. 1

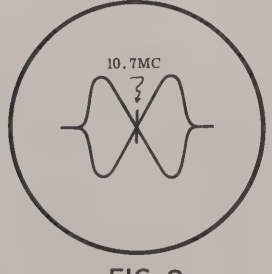


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		JACKSON PART No.	STANDARD REPLACEMENT		
V1	FM RF Amp. - FM Mixer	12AT7	12AT7	9A	
V2	FM Osc.- AM Conv.	6BE6	6BE6	7CH	
V3	1st FM-AM IF Amp	6BA6	6BA6	7BK	
V4	2nd FM-IF Amp.	6BA6	6BA6	7BK	
V5	Ratio Detector	6AL5	6AL5	6BT	
V6	Det.-AVC-AF Amp.	6AT6	6AT6	7BT	
V7	Power Output	6AQ5	6AQ5	7BZ	
V8	Rectifier	6X4	6X4	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	JACKSON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	20	350		AF3662J		UPT2111145		TVL-4766	▲ Filter
B	10	350							■ Filter
C	10	350							▲ Filter
D	10	350							Filter
C2	10	25		PRS25/10		BR102A		TVA-1204	Output Cathode
C3	4	50		PRS150/4		BR550		TVA-1303	Stabilizing Cap.
C4	100			SI100	D6-101	5W5T1	GP1K-100	19C11	Ant. Coupling
C5	1000			SI1000	D6-102	1W5D1	GP2L-001	19C1	FM RF Cathode
C6	1000			SI1000	D6-102	1W5D1	GP2L-001	19C1	RF Bypass
C7	100			SI100	D6-101	5W5T1	GP1K-100	19C11	RF Coupling
C8	100			SI100	D6-101	5W5T1	GP1K-100	19C11	RF Coupling
C9	1000			SI1000	D6-102	1W5D1	GP2L-001	19C1	FM Mixer Cathode
C10	1000			SI1000	D6-102	1W5D1	GP2L-001	19C1	FM Mixer Fil.
C11	1000			SI1000	D6-102	1W5D1	GP2L-001	19C1	AVC Filter
C12	1.5			SI1.5NP0	TCZ-1.5		NP0K-1.5		Osc. Coupling
C13	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	AVC Filter
C14	33			SI33	D6-330	5W5Q3	GP1K-33	19C24	Osc. Grid Cap.
C15	2.2				TCZ-2.2				Osc. Feedback
C16	15			SI15	TCZ-15		NP0K-15	19C5	Fixed Trimmer
C17	5000			BPD-005	DD-502	1D5D5	811-005	29C1	Osc. Anode Bypass
C18	10000			BPD-01	DD-103	PTE4S1	821-01	36C1	Conv. Decoupling
C19	5000			BPD-005	DD-502	1D5D5	811-005	29C1	AVC Filter
C20	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	RF Bypass
C21	10000			BPD-01	DD-103	PTE4S1	821-01	36C1	1st IF Dec.
C22	5000			BPD-005	DD-502	1D5D5	811-005	29C1	1st IF Screen
C23	5000			BPD-005	DD-502	1D5D5	811-005	29C1	1st IF Filament
C24	100			SI100	D6-101	5W5T1	GP1K-100	19C11	Diode RF Filter
C25	5000			BPD-005	DD-502	1D5D5	811-005	29C1	2nd IF Dec.
C26	5000			BPD-005	DD-502	1D5D5	811-005	29C1	2nd IF Screen
C27	5000			BPD-005	DD-502	1D5D5	811-005	29C1	2nd IF Cathode
C28	5000			BPD-005	DD-502	1D5D5	811-005	29C1	2nd IF Fil.
C29	300	500		1468-0003	D6-301	5W5T3	GP2K-300	1FM-335	Diode Load Cap.
C30	2000			SI2000	D6-202	1W5D2	GP2M-002	29C2	De-emphasis
C31	10000			BPD-01	DD-103	PTE4S1	821-01	36C1	AVC Filter
C32	.01	200		P488-01	D6-103	PTE4S1	821-01	4TM-S1	Audio Coupling
C33	.01	200		P488-01	D6-103	PTE4S1	821-01	4TM-S1	Audio Coupling
C34	5000			BPD-005	DD-502	1D5D5	811-005	29C1	Tone Comp.
C35	.005	600		P688-005	D6-502	PTE6D5	811-005	6TM-D5	Output Plate
C36	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	Line Filter

CONTROLS

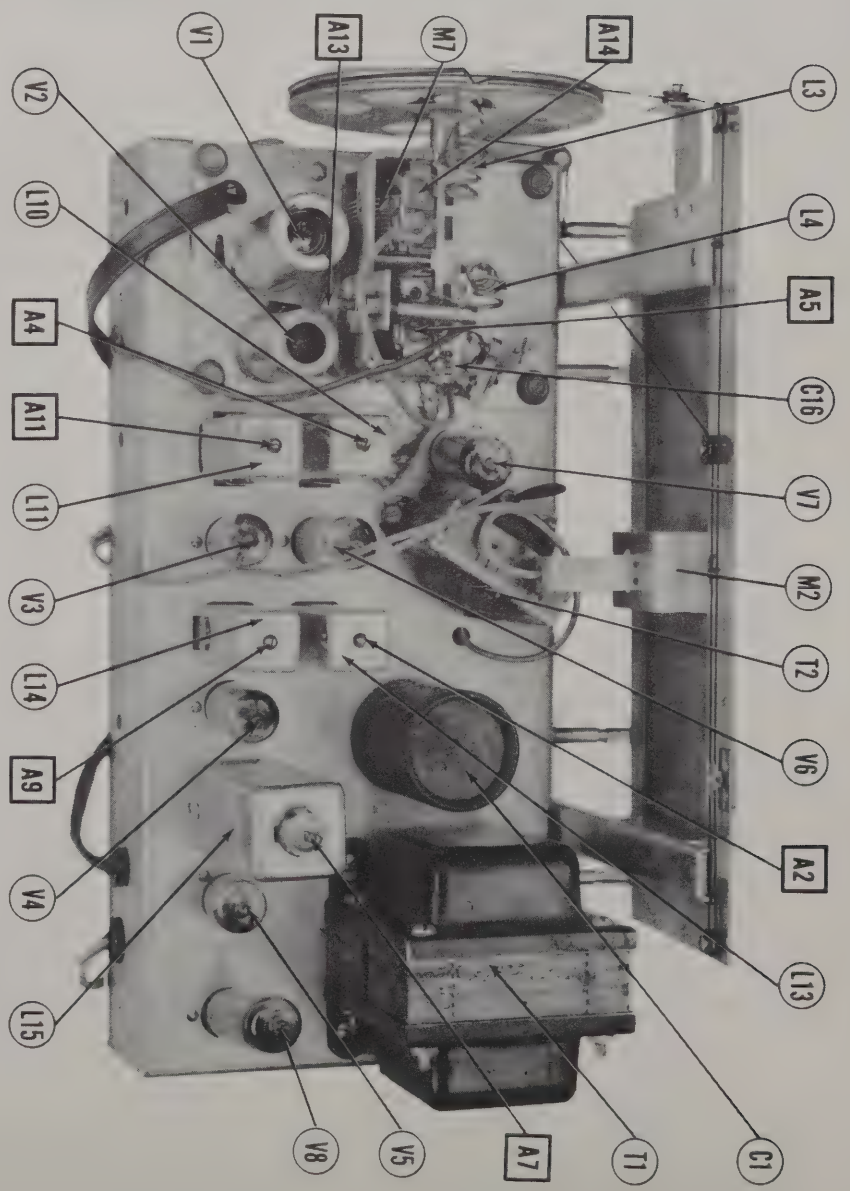
ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	JACKSON PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	1 Meg	½		Q13-137	AM-63-Z	BSK-70-S	Volume Control - See Note 1
B	Shaft			Not Req	KSS-3	Not Req	Attach to R1A per instructions
C	Switch			76-1	SW-A	Not Req	Attach to R1A per instructions

Note 1 Some models may use 500KΩ Control

SET 131

FOLDER 9

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	JACKSON PART No.	IRC PART No.	
R2	560Ω	½		BTS-560	Antenna Loading
R3	470KΩ	½			FM RF Amp. Grid
R4	220Ω	½		BTS-220	FM RF Amp. Cathode
R5	2.2Meg	½		BTS-2.2Meg	AVC Network
R6	470KΩ	½			FM Mixer Grid
R7	2200	½		BTS-2200	FM Mixer Cathode
R8	2.2Meg	½		BTS-2.2Meg	AVC Network
R9	27K	½		BTS-27K	FM Osc. Grid - See Note 2
R10	4700	½		BTS-4700	FM Osc. Anode
R11	1000Ω	½		BTS-1000	Decoupling
R12	100KΩ	½		BTS-100K	AVC Network
R13	68Ω	½			1st IF Amp. Cathode
R14	10KΩ	½			1st IF Amp. Screen
R15	1000Ω	½		BTS-1000	1st IF Amp. Decoupling
R16	68Ω	½			2nd FM IF Amp. Cathode
R17	10KΩ	½			2nd FM IF Amp. Screen
R18	1000Ω	½		BTS-1000	2nd FM IF Amp. Decoupling
R19	16KΩ	½			Ratio Det. Diode Load - See Note 3
R20	16KΩ	½			Ratio Det. Diode Load - See Note 3
R21	33KΩ	½		BTS-33K	De-emphasis - See Note 2
R22	100KΩ	½		BTs-100K	AVC Network
R23	33KΩ	½		BTS-33K	Diode Filter - See Note 4
R24	470KΩ	½		BTS-470K	Diode Load
R25	3.3Meg	½		BTS-3.3Meg	AVC Network
R26	220KΩ	½		BTS-220K	Series Phono
R27	33KΩ	½		BTS-33K	Tone Compensation - See Note 4
R28	6.8Meg	½		BTS-6.8Meg	AF Amp. Grid
R29	270Ω	1		BTA-270	Output Cathode
R30	1000Ω	5		1 3/4A-1000	Filter - Wire Wound
R31	100Ω	1		BTA-100	Filter

Note 2 Some models use 22KΩ Resistor in this application
Note 3 Some models use 12KΩ Resistor in this application
Note 4 Some models use 47KΩ Resistor in this application

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	JACKSON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC @ .48A	450 VCT .085ADC	6.3VAC @ 3.15A			PC-8420 ① ②		

① Drill new mounting hole
② Add series resistor to reduce plate voltage

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		JACKSON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	5.1KΩ	3.2Ω	480Ω	.8Ω		A-3877 ①	A-3026 ①	R0-9 ①	① Drill one new mounting hole

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	V. C. IMP.	JACKSON PART No.	VIKING PART No.	QUAM PART No.	
SP1	PM	3.2Ω		10J12	10A4A	
	CONE DIA.	V. C. DIA.				
SP2	9 3/8"	1"				

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	JACKSON PART No.	MEISSNER PART No.	
L1	Cathode Choke	.1Ω				Wound on 1KΩ Resistor
L2	RF Choke	.5Ω				
L3	FM RF Coil	0Ω†				
L4	FM Osc. Coil	0Ω				
L5	Loop Ant.	.1Ω	1.3Ω			
L6	Ant. Loading Coil	0Ω				Wound on 47Ω Resistor
L7	AM Osc. Coil	1.3Ω	5.5Ω			
L8	Fil. Choke	.3Ω				
L9	Fil. Choke	.3Ω				
L10	1st AM IF	35Ω	16Ω			
L11	1st FM IF	.8Ω	.8Ω			
L12	Fil. Choke	0Ω				
L13	2nd AM IF	13Ω	13Ω			
L14	2nd FM IF	.8Ω	.8Ω			
L15	Ratio Det. Trans.	1.1Ω	.1Ω			

PHONO CARTRIDGE and NEEDLE

ITEM No.	REPLACEMENT DATA							REMARKS
	JACKSON PART No.	ASTATIC PART No.		SHURE PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1		ACD-J	A-1 A-3	W22AB	A65MG A62A	96	0-3 S-1	

ASTATIC, SHURE AND ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED.

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					JACKSON PART No.		
M2	Bayonet	6-8	.15	Brown			Type #47
M3	Bayonet	6-8	.15	Brown			Type #47 †

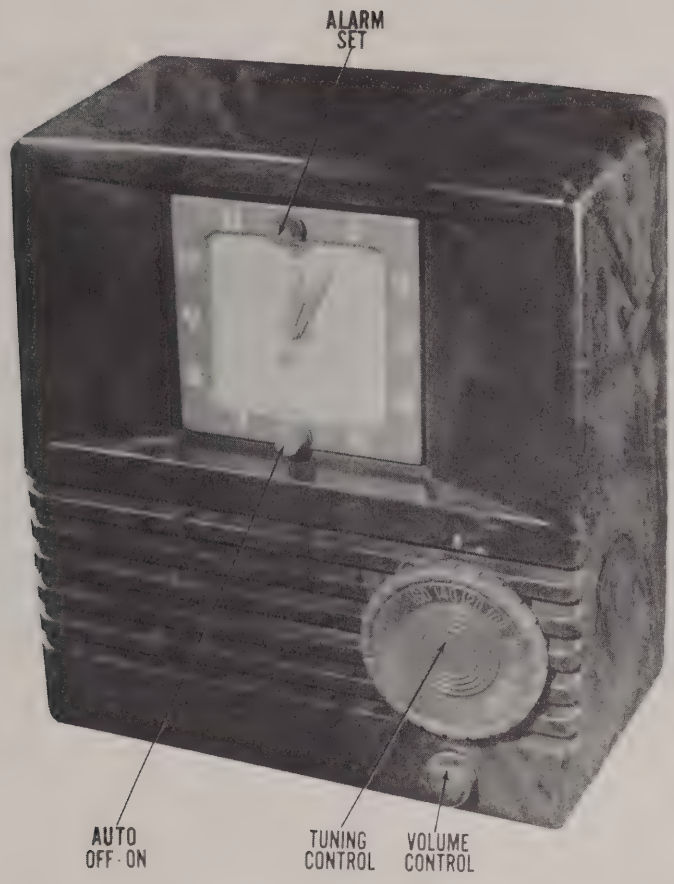
† Not used in all models

MISCELLANEOUS

ITEM No.	PART NAME	JACKSON PART No.	NOTES
M4	Audio Coupling Unit		
M5	Switch		Function (Phono-AM-FM)
M6	Switch		Tone
M7	2 Gang Var. Cap.		(16-527MMF, 21-202MMF)

KNIGHT MODEL 5H605

KNIGHT MODEL 5H605



KNIGHT MODEL 5H605

KNIGHT MODEL 5H605

TRADE NAME	Knight, Model 5H605
SUPPLIER	Allied Radio Corp., 833 W. Jackson Blvd., Chicago, Ill.
TYPE SET	AC Operated Superheterodyne Receiver With Electric Clock
TUBES (FIVE)	Types 12SA7 Converter, 12SK7GT IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier
POWER SUPPLY	110-120 Volts AC — RATING .24 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap fully closed and set pointer to last reference mark at low frequency end of dial.
Use isolation transformer if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to stator on rear section of tuning gang. Low side to B-.	455KC (400 ∿ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1620KC	"	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for max. output.
3.		Loop	1400KC	Tune for max. output	"	A5	"

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		KNIGHT PART No.	STANDARD REPLACEMENT		
V1	Converter	12SA7	12SA7	8R	
V2	IF Amplifier	12SK7	12SK7	8N	
V3	Det.-AVC-AF	12SQ7	12SQ7	8Q	
V4	Power Output	50L6GT	50L6GT	7AC	
V5	Rectifier	35Z5	35Z5	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	KNIGHT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	50	150	N-7889	PRS150/50-30		EDL5315		TVA-2450	Filter Blue
B	30	150							Filter Red
C2	.05	200	N-1345	P288-05	DF-503	PTE4S5		2TM-S5	AVC Filter
C3	.05	200	N-1345	P288-05	DF-503	PTE4S5		72P51	Line Isolation
C4	.05	200	N-1345	P288-05	DF-503	PTE4S5		2TM-S5	Tuning Cap Isolation *
C5	100	500	N-6015	1468-0001	D6-101	5W5T1	GP1K-100	1FM-31	Diode RF Filter
C6	100		N-7549	SI100N750	TCN-100	5R5T1	N750L-100	29C'6	Fixed Trimmer
C7	.005	600	N-4894	P688-005	D6-502	PTE6D5	811-005	6TM-D5	Audio Coupling
C8A	250		†	SI250	PC-81 †	5W5T25	GP2K-250	19C13	AF Amp. Plate
B	10000			BPD-01		PTE4S1	821-01	36C1	Audio Coupling
C9	.01	400	N-1344	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Output Plate
C10	.05	400	N-1346	P488-05	DF-503	PTE4S5		4TM-S5	Rect. Plate

* Not used in all models.
† Items C8A, C8B, R5A and R5B are combined into one unit.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	KNIGHT PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	500KΩ	½	N-7957	Q13-133	AM-60-Z	BSK-60	Volume Control - See Note 1
B	Shaft		Not req.	Not req.	KSS-3	Not req.	Attach to R1A Per Instructions

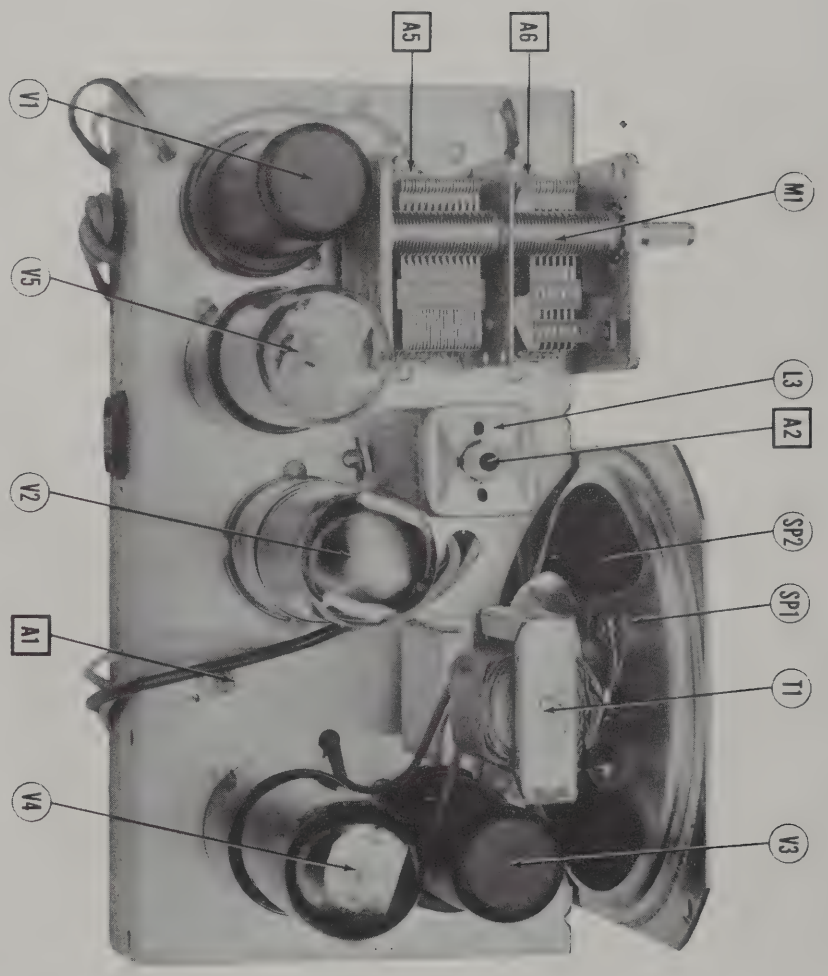
Note 1. Add 50KΩ resistor in series with high side of replacement control.

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	KNIGHT PART No.	IRC PART No.	
R2	22KΩ	½	N-4025		Osc. Grid
R3	1Meg	½	N-1262	BTS-1Meg	AVC Network
R4	6.8Meg	½	N-4028	BTS-6.8Meg	AF Amp. Grid
R5A	220KΩ	½	†	BTS-220K	AF Amp. Plate
B	470KΩ	½		BTS-470K	Output Grid
R6	220Ω	½	N-4024	BTS-220	Output Cathode
R7	1200Ω	1	N-4900	BTA-1200	Filter
R8	220KΩ	½		BTS-220K	Isolation - See Note 2

† Items R5A, R5B, C8A and C8B are combined into one unit. See C8 for parts listing.
Note 2. Not used in all models.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		KNIGHT PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	2.6KΩ	3.7Ω	305Ω	.7Ω		A-3332 ①	A-2028 ①	R0-2 ①	① Bend mounting tabs down, file out slots and mount original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			KNIGHT PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	V. C. IMP.		ST-113		
SP1	PM	3.7Ω	N7824	Mod. P4-X	4A1	
	CONE DIA.	V. C. DIA.				
SP2	3 3/4"	9/16"				

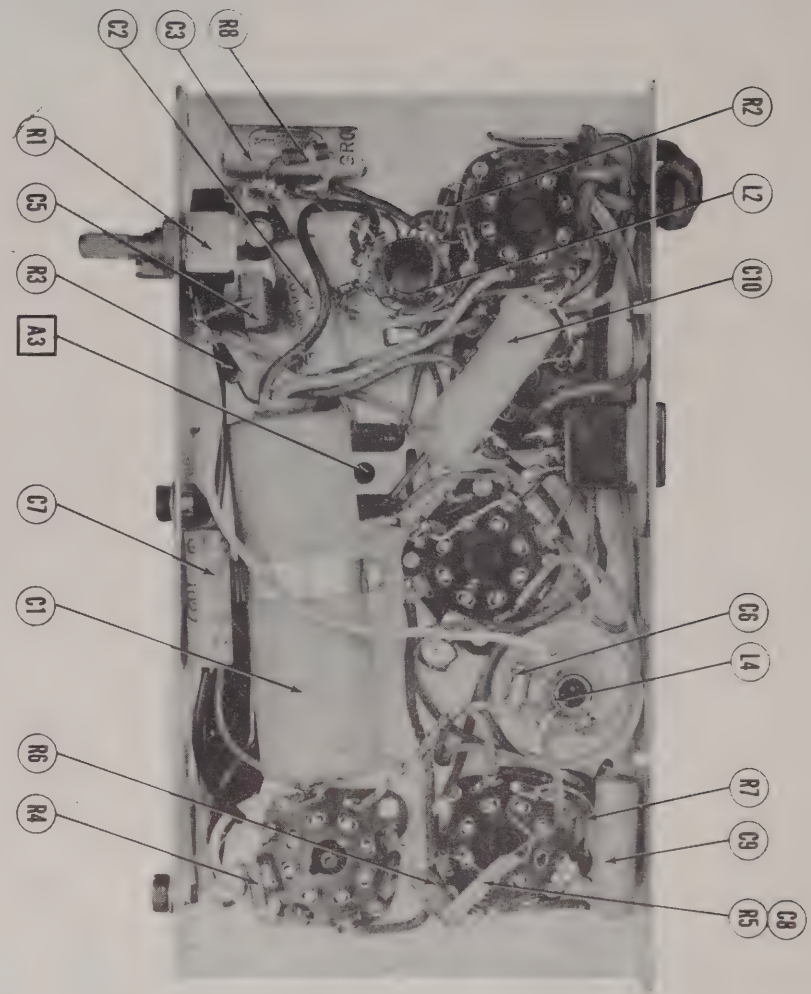
R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	KNIGHT PART No.	MEISSNER PART No.	
L1	Loop Ant.	3.4Ω		N-7956		
L2	Osc. Coil	.7Ω	7.8Ω	N-7139	14-1073	
L3	1st IF	20Ω	20Ω	N-7888		
L4	2nd IF	22Ω	22Ω	N-7542		

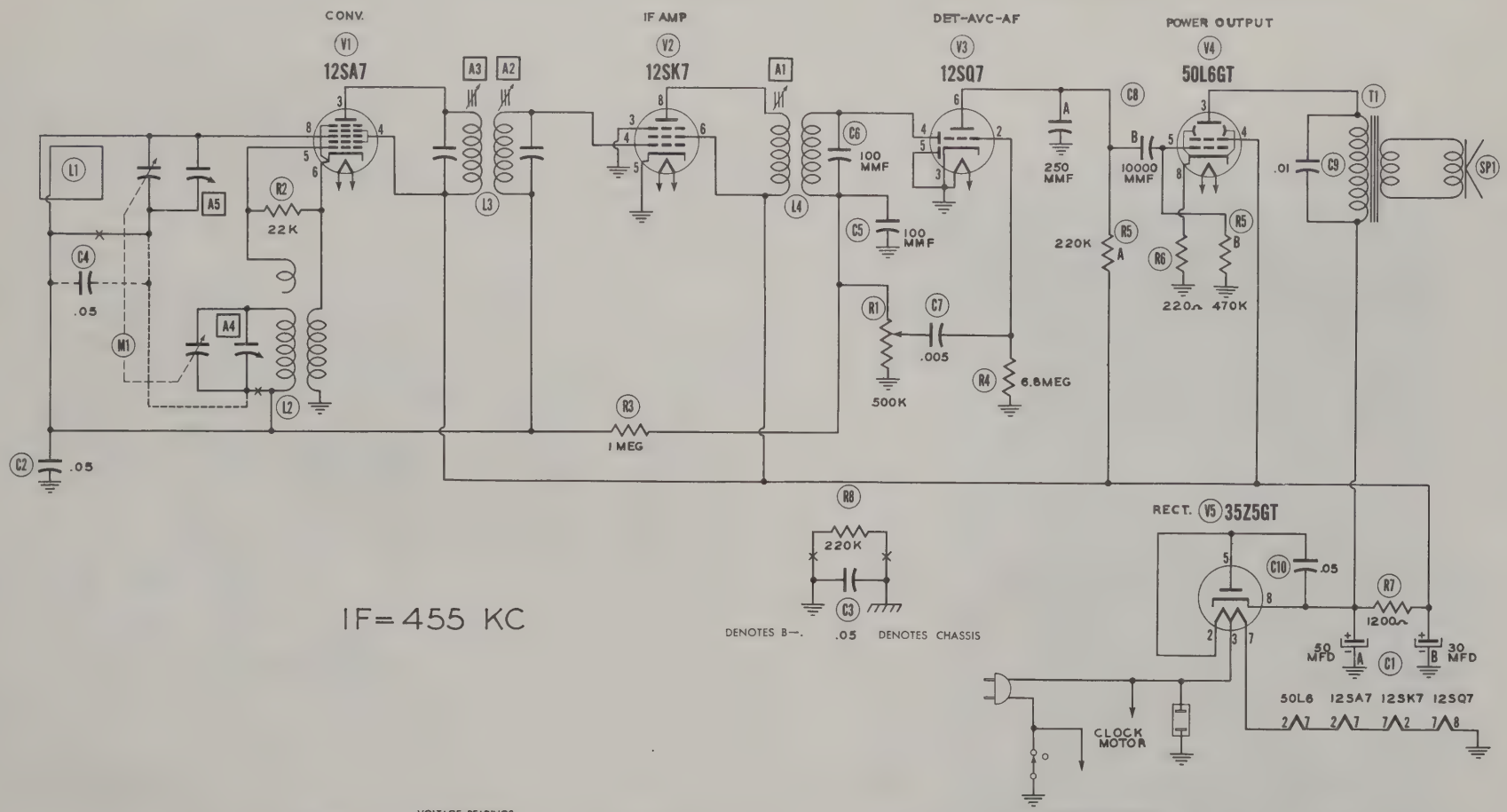
MISCELLANEOUS

ITEM No.	PART NAME	KNIGHT PART No.	NOTES
M1	2 Gang Var. Cap	N-7141	(18-397MMF, 18-153MMF)

CHASSIS—BOTTOM VIEW



KNIGHT MODEL 5H605



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VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12SA7	0V	40VAC	80VDC	80VDC	§-8.7VDC	0V	27VAC	-.4VDC
V 2	12SK7GT	0V	13VAC	0V	-.4VDC	0V	80VDC	27VAC	80VDC
V 3	12SQ7	0V	-.5VDC	0V	-.4VDC	0V	55VDC	13VAC	0V
V 4	50L6GT	0V	90VAC	105VDC	80VDC	0V	112VDC	40VAC	6.4VDC
V 5	35Z5GT	0V	107VAC	117VAC	0V	107VAC	0V	90VAC	112VDC

§ TAKEN WITH VACUUM TUBE VOLTMETER

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12SA7	220KΩ	40Ω	†1.2KΩ	†1.2KΩ	22KΩ	.7Ω	26Ω	1.5Meg
V 2	12SK7GT	220KΩ	14Ω	0Ω	1.5Meg	0Ω	†1.2KΩ	26Ω	†1.2KΩ
V 3	12SQ7	220KΩ	6.8Meg	0Ω	500KΩ	0Ω	†220KΩ	14Ω	0Ω
V 4	50L6GT	Inf.	90Ω	†305Ω	†1.2KΩ	470KΩ	†0Ω	40Ω	220Ω
V 5	35Z5GT	Inf.	130Ω	130Ω	Inf.	130Ω	Inf.	90Ω	40KΩ

† MEASURED FROM PIN 8 OF V 5

THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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131-10

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

MARKEL
MODELS 74, 75 Supplement

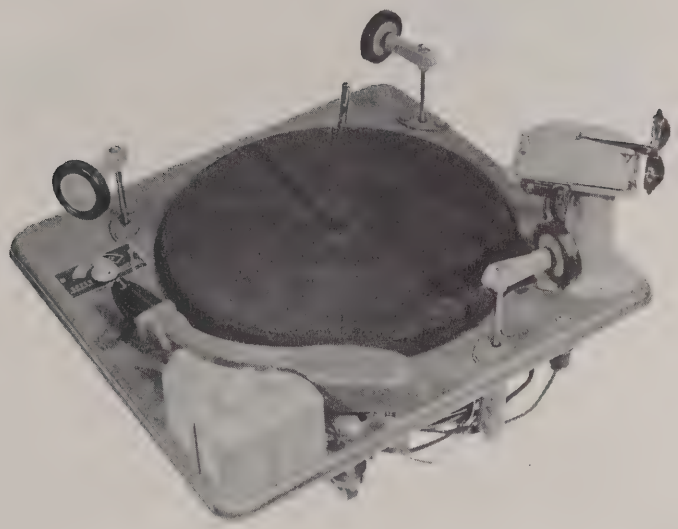

Figure 1

MARKEL
MODELS 74, 75 Supplement

GENERAL INFORMATION

This Supplementary Manual is to facilitate some changes and additions which have been made in late production on the Models 74 and 75 Playmaster. These parts are shown and called out on the partial exploded view, and each new part is listed in the Parts List. Most of the changes, which have taken place on the Models 74 and 75 Playmaster, were made to improve upon the product.

This Folder Is a Supplement to Set 91, Folder 7.

MANUFACTURED BY

MARKEL ELECTRIC PRODUCTS, INC.

Playmaster Division

129-149 SENECA STREET • BUFFALO 3, N. Y.

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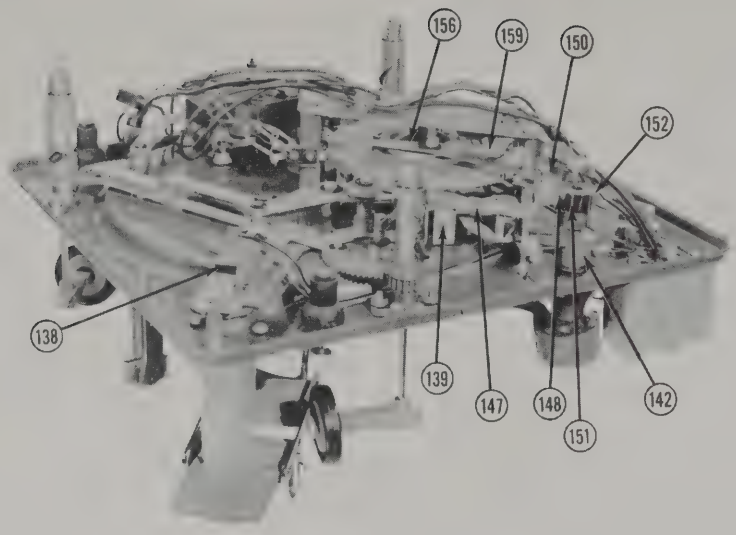

Figure 2

LATE PRODUCTION CHANGES ON MODELS 74 AND 75 MARKEL PLAYMASTER

Use this Supplement along with the 74 and 75 Service Manual when Servicing this Changer.

Differences in Early and Late Production:

The mechanical function in late production of Models 74 and 75 is the same as in early production, with the exception of tripping, automatic shut-off and 10'' set-down adjustment.

In early production, the tripping point of the changer was arrived at by adjustment screw *(64), located in the tone arm adjusting collar *(65), making contact with the leaf trip switch *(107). A sliding snap switch *(126) was also used, in conjunction with the leaf trip switch, to compensate for the different tripping points for fine-groove and standard-groove records. This snap switch *(126) was activated by the speed control knob through the medium of the switch actuating lever *(113).

In late production, the Models 74 and 75 incorporate a velocity trip mechanism which eliminates the snap switch *(126) and the adjustment screw, as mentioned above.

The automatic shut-off in early production was accomplished by the push-off lever *(13) engaging the leaf spring *(83), which, in turn, contacted the bale switch *(96); whereas, a slide switch (138) replaces this leaf spring *(83) and switch *(96) in late production.

The 10" set-down adjustment was determined by loosening the hex cap screw in the tone arm adjusting collar *(65) and moving the tone arm to the correct position; however, an adjustment screw (139) and bracket (141) replace the above, in late production, to give a more satisfactory adjustment.

Function of New Parts:

Description and Operation: Push-off lever spring (135) replaces the leaf spring *(83) in holding the push-off lever *(13) in a raised position, thus preventing the changer from being shut off before the last record is played.

The shut-off switch (138) replaces the bale switch *(96) and operates as follows: When the last 10" or 12" record is ejected from the record shelf, the record stabilizer *(1) drops down against the automatic stop hinge *(5), which, in turn, pushes down on the push-off lever *(13). As the push-off cam *(81) returns the slide plate *(6) to its original position, the push-off lever *(13) pushes against the switch button (138), closing the contacts of the switch to the latching solenoid *(129) and opening the contacts to the trip solenoid *(105). When the record is finished playing, the contact screw (159) engages the trip switch on the velocity trip actuating lever (156). This closes the circuit energizing the latching solenoid *(129), thereby tripping the main switch *(53) and shutting off the unit.

10" Set-Down Adjustment is as follows: Place a 10" record on the turntable. Trip the mechanism and stop it just as soon as the tone arm starts to drop to the turntable. At this point, the 10" adjustment screw (139) of the set-down bracket (141) should be touching the tone arm stop lever (145). To make the set-down adjustment, loosen the hex nut (140); then turn the adjustment screw (139) in the direction necessary for proper set-down. Tighten the hex nut being careful not to turn the screw. Check the adjustment.

Velocity Trip:

The velocity trip operates as follows: First of all, a frictional condition is set up between the trip and reset lever assembly (150) and the tone arm sleeve collar (152), which is mounted on the tone arm sleeve. As a result, any movement of the tone arm causes the trip and reset lever assembly (150) to move also. As the tone arm moves across the record, the trip and reset lever assembly (150) pivots against

* These numbers refer to original 74 and 75 Service Manual.

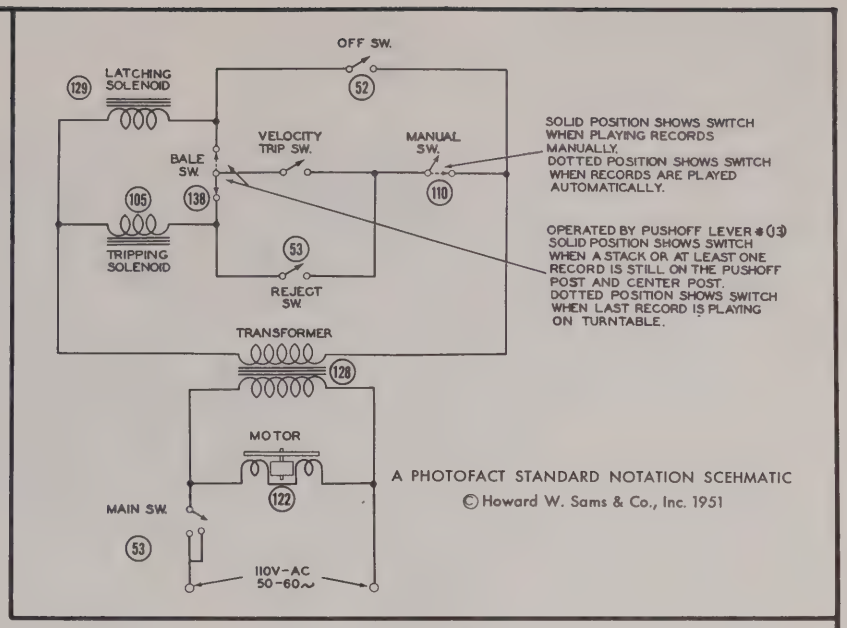
OFF SW.
52
LATCHING SOLENOID
129
VELOCITY TRIP SW.
MANUAL SW.
BALE SW.
138
110
105
TRIPPING SOLENOID
53
REJECT SW.
SOLID POSITION SHOWS SWITCH WHEN PLAYING RECORDS MANUALLY.
DOTTED POSITION SHOWS SWITCH WHEN RECORDS ARE PLAYED AUTOMATICALLY.
OPERATED BY PUSHOFF LEVER #13
SOLID POSITION SHOWS SWITCH WHEN A STACK OR AT LEAST ONE RECORD IS STILL ON THE PUSHOFF POST AND CENTER POST.
DOTTED POSITION SHOWS SWITCH WHEN LAST RECORD IS PLAYING ON TURNTABLE.
TRANSFORMER
128
MOTOR
122
MAIN SW.
53
110V-AC 50-60~
A PHOTOFACT STANDARD NOTATION SCEHMATIC
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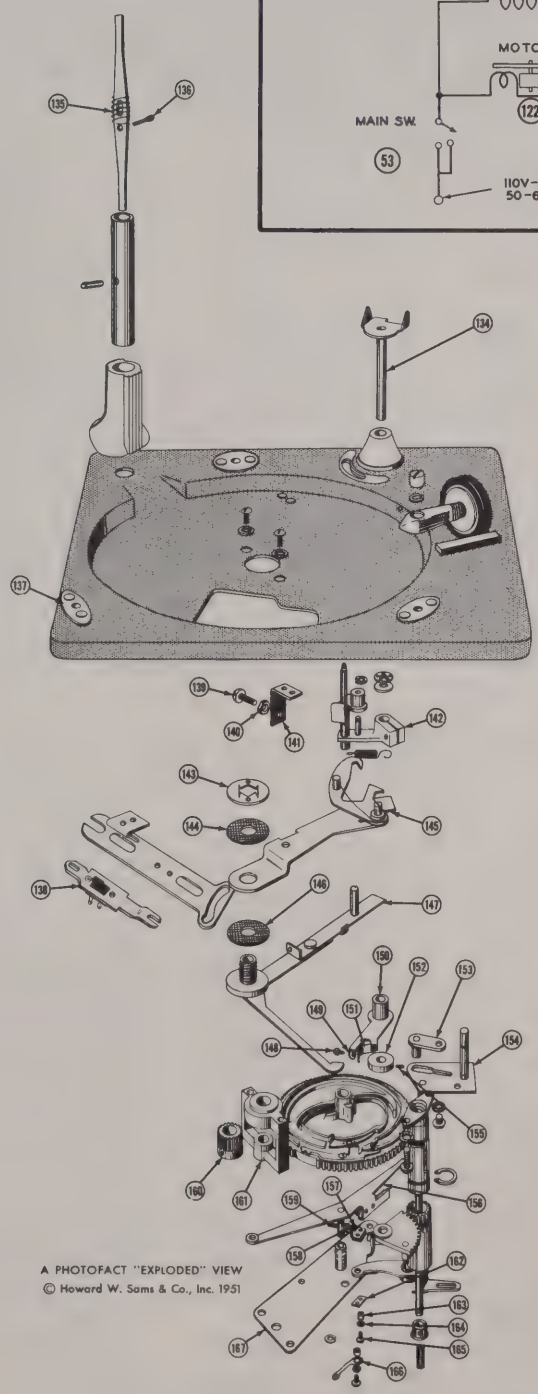
Figure 3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A PHOTOFACT "EXPLODED" VIEW
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the velocity trip actuating lever (156) and carries it with it; however, as the turntable gear (160) revolves, the cam on the bottom of the gear strikes the roller on the velocity trip lever, which, in turn, forces the velocity trip lever (156) and the trip and reset lever (150) away from the tripping point. When the needle enters the fast lead-in grooves of the record, the trip and reset lever (150) pivots the velocity trip lever (156) enough for the trip switch on the velocity trip lever to engage the contact screw (159) of the stationary contact bracket (157); this, in turn, energizes the solenoid *(105), thus starting the change cycle.

TROUBLES AND ADJUSTMENTS

Failure to Shut Off:

1. Record stabilizer resting on 7" push-off shelf.
2. Push-off lever *(113) binding in a raised position.
3. Shut-off switch and bracket assembly loose on mounting. If the hex nut *(86) holding switch and bracket assembly in place is loose, it will allow this assembly to move forward, thus defeating the purpose of the switch. If this is true, move the switch and bracket assembly away from the center of the changer and tighten the nut. Check the adjustment.

NOTE: The record stabilizer must be in a lowered position, pointing toward the spindle, or the shut-off mechanism will not operate.

4. "The adjustment covered in item 3 above must be made only when the Push-off lever *(113) is in the maximum downward position and the three rubber wheels *(36) are in an outward position, for playing records on the table. The entire switch bracket (138) is then moved outward from the center to within 1/32" of its maximum possible movement. If the nut *(86) is tightened after the bracket is moved to its maximum movement, a jam will occur at the time of shut-off".
5. Faulty Wiring.

Failure to Trip:

1. Faulty Wiring.
2. Check location of button on actuating lever with respect to eccentric cam on turntable gear--must not be too high or too low. If necessary, bend to correct.
3. Check actuating lever for freedom of movement.
4. If tone arm assembly has been disturbed from initial factory setting, it will be necessary to reset the tone arm sleeve collar (152). To do this, loosen the Allen screw (155) in tone arm sleeve collar (152) and move collar clockwise (when viewed from bottom of changer). Move switch trip and reset lever (150) counter-clockwise until resistance is felt. This point indicates where additional pressure is applied to insure tripping or shut-off. Set stylus at a point 2-3/16" from O. D. of center post. With stylus held at this point, move tone arm sleeve collar (152) counter-clockwise until the edge of switch trip and reset lever (150) contacts the actuating lever. Tighten set screw on tone arm sleeve collar (152).
5. To set gap adjustment, use standard 10" record. Loosen hex Nut (158) on the contact screw (159) and cycle machine by pressing reject button. Allow the arm to track at least 1" across the record. Move screw in slowly until machine shuts off. Back screw up not less than 1/3 turn and not more than 1/2 turn and tighten hex Nut.
6. Check action by playing standard and L. P. records.

Changer Trips Before Needle Reaches End of Record:

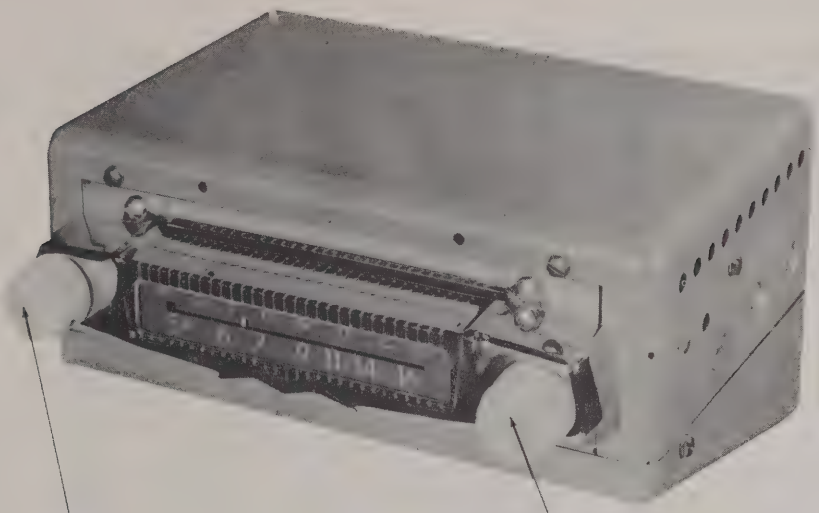
1. Velocity trip screw (159) not adjusted properly. Loosen the hex nut (158) and turn adjustment screw (159) out slightly; then tighten the hex nut. Check the adjustment.
2. Velocity trip actuating lever bent down near the turntable gear (160). If this is true, the cam on the bottom of the turntable gear (160) will not strike the trip lever (156), thereby failing to push the velocity trip lever away from the tripping point.

* These numbers refer to original 74 and 75 Service Manual.

MARKEL

REF.NO.	PART NO.	DESCRIPTION
134	U-7010-A	Tone Arm Hinge and Sleeve
135	W-7058	Push Off Lever Spring
136	R-7012	Cotter Pin - Push Off Lever Spring
137	S-7076	Riser Wheel Plate Assembly
138	S-7081-1A	Shut-Off Switch and Bracket Assembly
139	M-274	8-32 x 7/16" Rd. Hd. Mach. Screw for Item No. 141
140	F-217	8-32 Hex Nut for Item No. 139
141	S-7077	10 Set-down Bracket
142	B-7006-2	Tone Arm Adjustment Collar
143	F-7009	Tinnerman Nut No. C6373
144	Z-7038	Fiber Washer 7/8" O.D. x 3/8" I.D. x 1/32" Thick
145	S-7058	Tone Arm Stop Lever Assembly
146	Z-7038	Fiber Washer 7/8" O.D. x 3/8" I.D. x 1/32" Thick
147	S-7019-1	Tone Arm Cam Follower Arm
145-147 (Complete Assembly)	S-7019-1A	Master Lever Assembly Including Parts 143, 144, 145, 146 and 147
148	M-7016	5-40 x 1/4" Phillips Hd. Mach. Screw
149	Z-7018	"Kantlink" Washer No. 5
150	S-7080	Switch Trip and Reset Lever Assembly
151	W-7056	Tension Spring Velocity Trip
152	U-7031	Tone Arm Sleeve Collar
153	S-7055	Adjustment Link Assembly
154	S-7066-1	Change Arm and Switch Lever
155	M-7015	5-40 x 3/16" Allen Set Screw (Cone Point)
156	S-7079	Velocity Trip Actuating Lever
157	S-7078	Stationary Contact Bracket
158	F-218	6-32 Hex Nut for Item 159
159	A-7131	6-32 Contact Screw for Item 157
160	B-7013	Turntable Gear
161	B-7002-1A	Center Bearing Support
162	A-7128	Separator Fiber
163	A-7127	Insulating Bushing
164	Z-138	Lockwasher 6-32 x 1/32" (#1206)
165	M-272	6-32 x 3/8" Rd. Hd. Machine Screw
166	Z-7050	Solder Lug
167	S-7004-2	Cam Plate Sub-Assembly

MOTOROLA
MODEL 401



MOTOROLA
MODEL 401

MOTOROLA MODEL 401

TRADE NAME	Motorola, Model 401
MANUFACTURER	Motorola Inc., 4545 Augusta Blvd., Chicago 51, Illinois
TYPE SET	Battery Operated Universal Automotive Superheterodyne Receiver
TUBES (SIX)	Types 6BA6 RF Amp., 6BE6 Converter, 6BA6 IF Amp., 6AT6 Det.-AVC-AF, 6AQ5 Power Output, 6X4 Rectifier
POWER SUPPLY	6 Volt Storage Battery — RATING 5.4 Amp. @ 6.3 Volts DC
TUNING RANGE—BROADCAST	535-1605KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cores fully in and set pointer 3/4 inch to the right of the left hand end of the dial backplate. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (Grid) of 6BE6 (V2). Low side to chassis.	455KC (400~ Mod.)	Tuning cores fully out.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	fig. 1	High side thru dummy to ant. receptacle. Low side to chassis.	1610KC	"	"	A5, A6, A7	Check to see that tuning cores project 1 1/32 in. out of coils. Adjust for maximum output.
3.	"	"	1400KC	Set core carriage plate 2 9/16 " from inside edge of tuning assembly mounting frame.	"	A8, A9, A10	Adjust for maximum output.
4.	After set is reinstalled, fully extend antenna and tune in a weak station near 1400KC. Adjust A7 for maximum volume.						

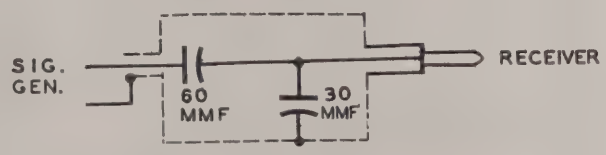


FIG. 1

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		MOTOROLA PART No.	STANDARD REPLACEMENT		
V1	RF Amplifier	6BA6	6BA6	7BK	
V2	Converter	6BE6	6BE6	7CH	
V3	IF Amplifier	6BA6	6BA6	7BK	
V4	Det.-AVC-AF	6AT6	6AT6	7BT	
V5	Power Output	6AQ5	6AQ5	7BZ	
V6	Rectifier	6X4	6X4	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	15	350	23A485677	AFH32H4A		UP15S135C		TVL-3630	■ Filter
B	10	350							▲ Filter
C	20	25							Output Cathode
C2	90		21A591682						Fixed Trimmer
C3	.006	100	8A4529	P488-006	D6-562	PTE6D6	811-005	6TM-D6	RF Coupling
C4	.05	100	8K13514	P288-05	DF-503	PTE4S5		2TM-S5	AVC Filter
C5	.05	400	8K14791	P488-05	DF-503	PTE4S5		4TM-S5	Decoupling
C6	5		21K70720	SI5NP0	TCZ-4.7	5W5V5	NP0K-5	MS-55	RF Coupling
C7	47		21K77373	SI47	D6-470	5W5Q5	GP1K-47	19C25	Osc. Grid Cap.
C8	.01	100	8K472754	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Audio Coupling
C9	.01	400	8K23690	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Audio Coupling
C10	500	500	21K481377	1468-0005	D6-501	5W5T5	GP2K-500	1FM-35	Output Grid
C11	.004	400	8K71909	P688-004	D6-402	PTE6D4	GP2M-004	6TM-D4	Output Plate
C12	.03	1600	8K400883	P1688-03		PTE16S3		MB-S3	Buffer
C13	.5	100	8K17028	P185-5				68P20	Hash Filter
C14	.5	100	8K17028	P185-5				68P20	Hash Filter

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	500KΩ	½	18K501294	Q13-133	AG-60-Z	B-60-S	Volume Control
B	Shaft		Not Req	Not Req	RS-2	Not Req	Attach to R1A per instructions
C	Switch		Not Req	76-1	SWB	Not Req	Attach to R1A per instructions

RESISTORS

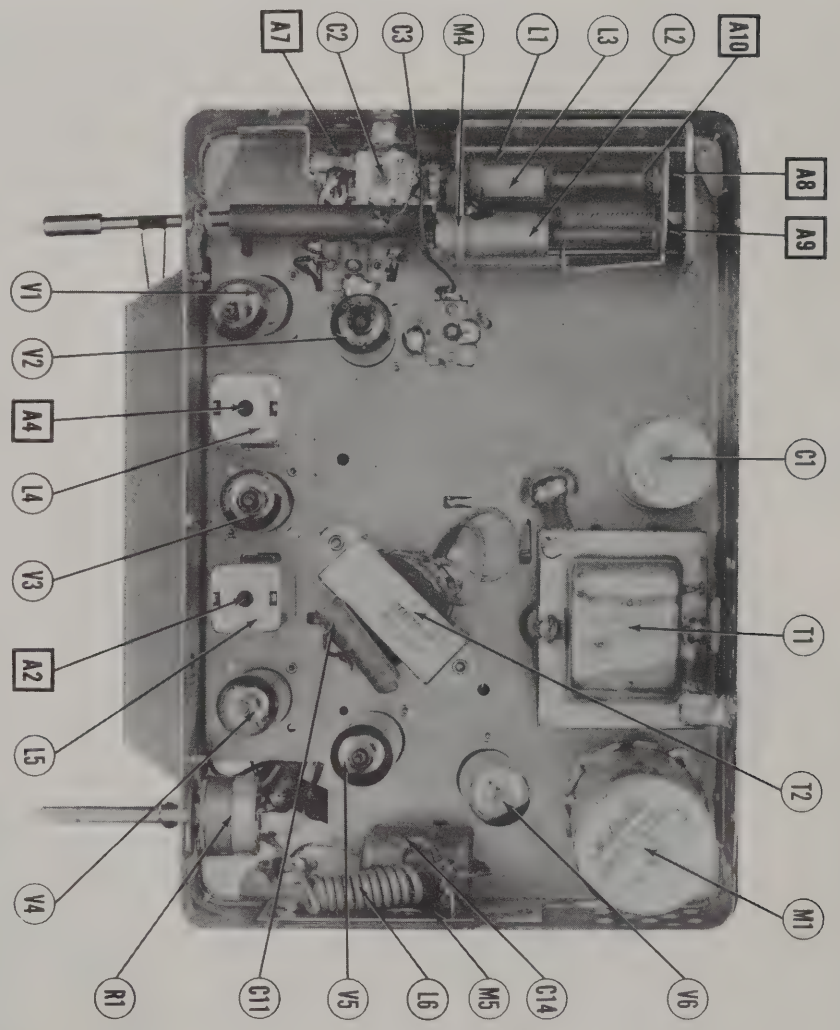
ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MOTOROLA PART No.	IRC PART No.	
R2	470KΩ	½	6R6032	BTS-470K	RF Amp. Grid
R3	150Ω	½	6R3992	BTS-150	RF Amp. Cathode
R4	100KΩ	½	6R6075	BTS-100K	Conv. Grid
R5	47KΩ	½	6R6056		Osc. Grid
R6	330Ω	½	6R6010	BTS-330	IF Amp. Cathode
R7	6800Ω	2		BTA-6800	Decoupling
R8	1Meg	½	6R6004	BTS-1Meg	AVC Network
R9	4.7Meg	½	6R2122	BTS-4.7Meg	AF Amp. Grid
R10	470KΩ	½	6R6032	BTS-470K	AF Amp. Plate
R11	270KΩ	½	6R6414	BTS-270K	Output Grid
R12	270Ω	1	6R6336	BTA-270	Output Cathode
R13	2200Ω	1	6R488312	BTA-2200	Filter
R14	56Ω	½	6R5614		Hash Suppressor
R15	56Ω	½	6R5614		Hash Suppressor

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	6.3 VDC ② 2.8A	620VCT .042VDC			25C501303			VT-1 ③ ④

③ Add series Resistor to reduce plate voltage
④ Drill new mounting holes

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	5.3KΩ	2.8Ω	405Ω	.62Ω	25B70171	A-3878	A-3026 ②	R0-9 ②	② Drill one new mounting hole

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			MOTOROLA PART No.	VIKING PART No.	QUAM PART No.	
	FIELD	V. C. IMP.				
SP1	PM	2.8Ω	50K500415	525J4	52A1	
	CONE DIA.	V. C. DIA.				
SP2	5 1/8"	9/16"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	MOTOROLA PART No.	MEISSNER PART No.	
L1	Ant. Coil	13Ω		24B502472		
L2	RF Coil	13Ω		24B502473		
L3	Osc. Coil	.7Ω	2.8Ω	24B502474		
L4	1st IF	19Ω	19Ω	24B485553		
L5	2nd IF	19Ω	19Ω	24K485554		
L6	Hash Choke	0Ω		24K580706		
L7	Hash Choke	0Ω		24A472535		

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				INSTALLATION NOTES
				MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	RADIART PART No.	
M1	Interrupter	6.3 VDC	115v	48B3333	A-200	5342	5342	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			MOTOROLA PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M2	SFE	9 Amp.	65K16248	9K580705①	307009	155009A	① This is assembly part number including holder complete with fuse

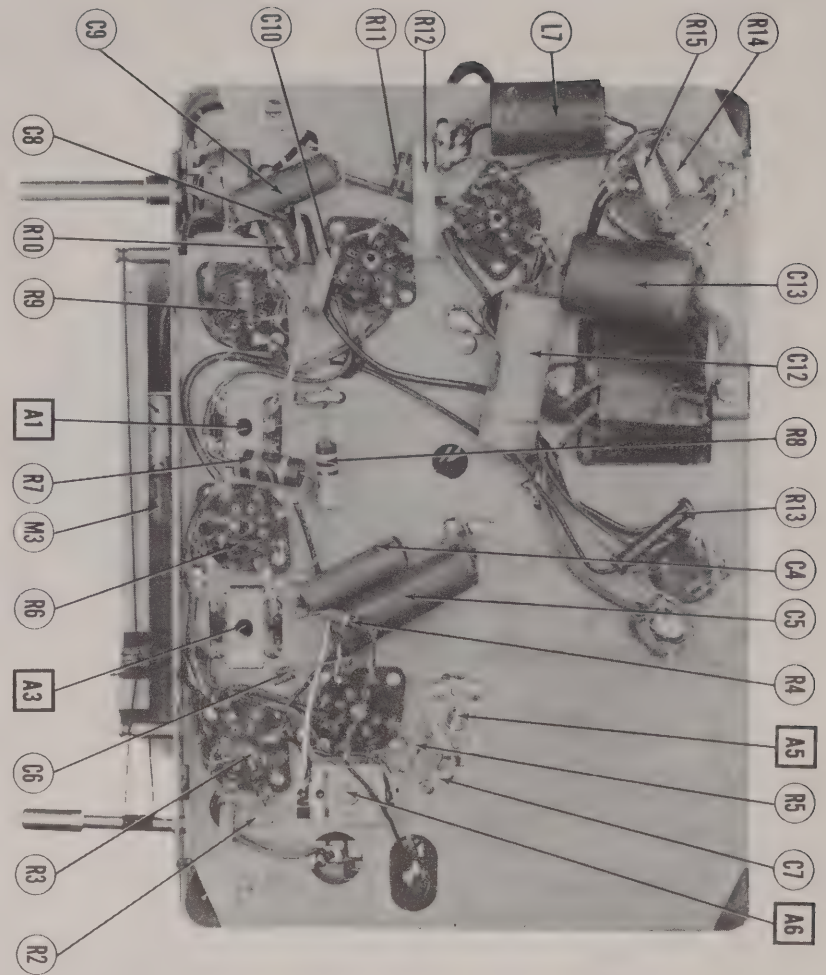
DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					MOTOROLA PART No.		
M3	Bayonet	6-8	.25	Blue	65X-10867		Type #44

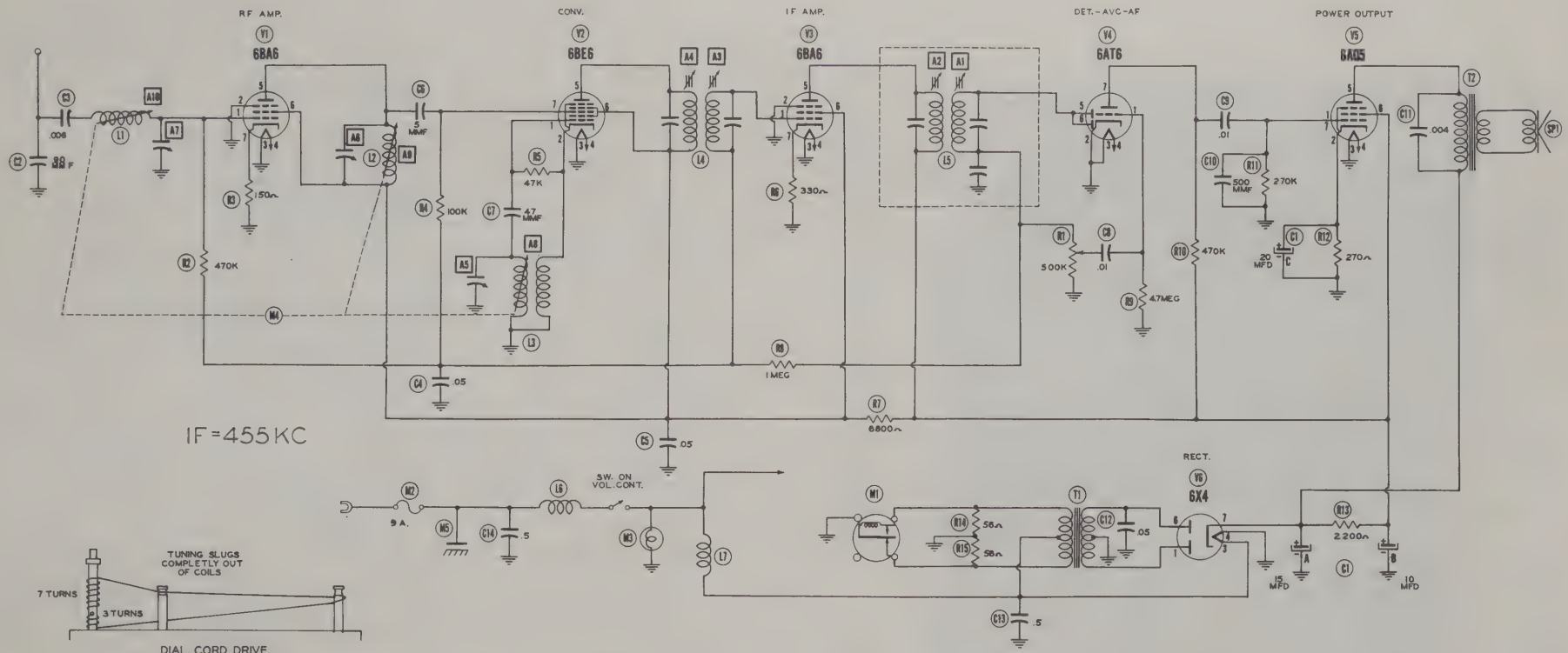
MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M4	Tuning Unit	51D502490	
M5	Spark Plate		
A5	Trimmer	20A485708	Osc. Adj.
A6	Trimmer	20A481526	RF Adj.
A7	Trimmer	20A502338	Ant. Adj.
	Knob	36B501297	
	Dial Scale	34B501360	

CHASSIS—BOTTOM VIEW



MOTOROLA MODEL 401



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6BA6	-.2VDC	0V	0V	6.3VDC	75VDC	75VDC	1VDC
V 2	6BE6	§-4.6VDC	0V	0V	6.3VDC	75VDC	75VDC	-.2VDC
V 3	6BA6	-.2VDC	0V	0V	6.3VDC	160VDC	75VDC	1.5VDC
V 4	6AT6	-.5VDC	0V	0V	6.2VDC	-.6VDC	-.6VDC	50VDC
V 5	6AQ5	0V	8VDC	0V	6.3VDC	190VDC	180VDC	0V
V 6	6X4	230VAC	6.3VDC	6.3VDC	0V	0V	230VAC	210VDC

§ TAKEN WITH VACUUM TUBE VOLTMETER

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6BA6	2Meg	0Ω	0Ω	.5Ω	†9KΩ	†9KΩ	150Ω
V 2	6BE6	47KΩ	.7Ω	0Ω	.5Ω	†9KΩ	†9KΩ	1.8Meg
V 3	6BA6	1.5Meg	0Ω	0Ω	.5Ω	†2.2KΩ	†9KΩ	330Ω
V 4	6AT6	4.7Meg	0Ω	0Ω	.5Ω	500KΩ	500KΩ	†470KΩ
V 5	6AQ5	270KΩ	270Ω	0Ω	.5Ω	†40SΩ	†2.2KΩ	270KΩ
V 6	6X4	45Ω	.5Ω	.5Ω	0Ω	Inf.	45Ω	180KΩ

† MEASURED FROM PIN 7 OF V6

THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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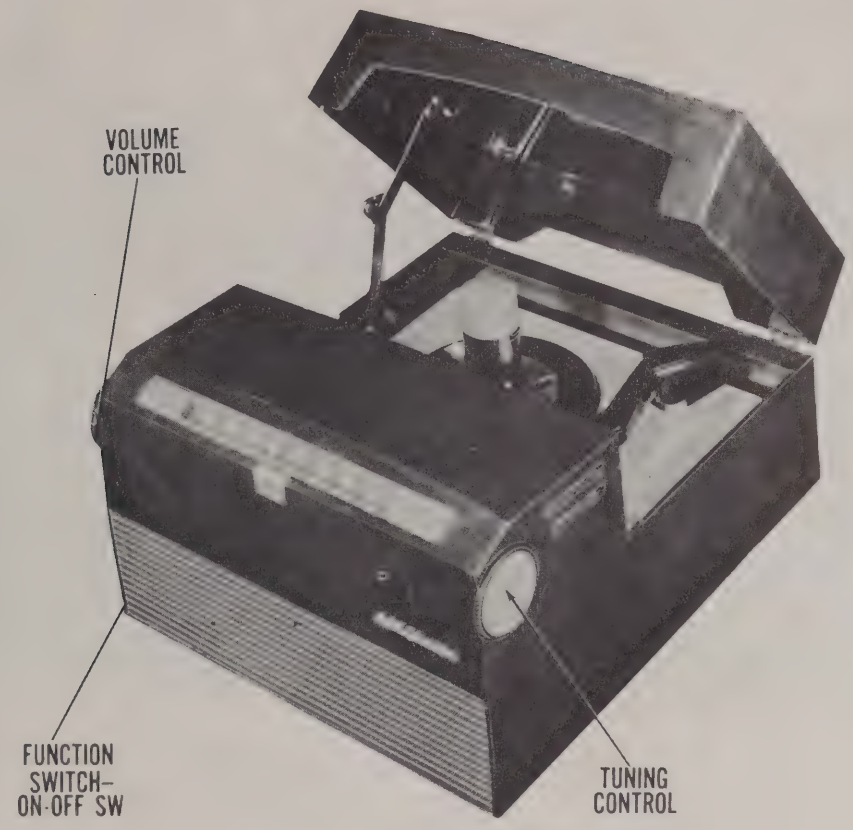
131-12

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Battery voltage maintained at 6.3 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

RCA VICTOR MODELS 9Y510 (Ch. RC1077A), 9Y511 (Ch. RC1077B)



RCA VICTOR MODELS 9Y510 (Ch. RC1077A), 9Y511 (Ch. RC1077B)

RCA VICTOR MODEL 9Y510

TRADE NAME	RCA Victor, Models 9Y510 (Ch. RC1077A), 9Y511 (Ch. RC1077B)
MANUFACTURER	RCA Victor Div., Radio Corp., of America, Camden, New Jersey
TYPE SET	AC Operated Combination Phono-Radio, Superheterodyne Receiver with Loop Antenna.
TUBES (FIVE)	Types 12BE6 Converter, 12BA6 IF Amp., 12AV6 Det.-AVC-AF, 50L6GT Power Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC — RATING .25 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning gang fully open and set pointer to the last reference mark at the high frequency end of the dial. Use isolation transformer if available. If not connect a .1MFD capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (Grid) of 12BE6 (V1) Low side to B-.	455KC (400~ Mod)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	Replace and record player in cabinet. Connect loop antenna.						
3.		Loop	1630KC	Tuning gang fully open.	Across voice coil.	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output
4.		Loop	1400KC	Tune for max. output.	"	A6	"
5.		Loop	535KC	Tuning gang fully closed.	"	A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. Repeat steps 3 and 5 until no further improvement can be made.

RECORD CHANGER --- RP-190 USED IN MODEL 9Y510
FOR SERVICE INFORMATION ON RECORD CHANGER USED IN MODEL 9Y511 SEE RCA VICTOR MODEL RP-168 IN PHOTOFACT SET 72 FOLDER 10 OR RECORD CHANGER MANUAL CM-3

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PARTS LIST AND DESCRIPTIONS

RCA VICTOR
MODEL 9Y510

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: RCA VICTOR PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amplifier	12BA6	12BA6	7BK	
V3	Det.-AVC-AF	12AV6	12AV6	7BT	
V4	Power Output	50L6GT	50L6GT	7AC	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: RCA VICTOR PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	80	150	75911	PRS150/80-40		EDL8415		TVA-3455	Filter Red
B	50	150							Filter Green
C2	150	500	39632	1468-00015	D6-151	5W5T15	GP2K-150	1FM-315	RF Bypass
C3	.05	400	73553	P488-05	DF-503	PTE4S5		4TM-S5	AVC Filter
C4	68	500	39624	SI68	D6-680	5W5Q7	GP1K-68	MS-47	Osc. Grid Cap.
C5	.002	200	73803	P688-002	D6-202	PTE6D2	GP2M-002	6TM-D2	Audio Coupling
C6	.05	400	73553	P488-05	DF-503	PTE4S5		4TM-S5	Phono Isolation
C7	.02	200	73562	P488-02	DF-203	PTE4S2		4TM-S2	Audio Coupling
C8	.005	200	73920	P688-005	D6-502	PTE6D5	811-005	6TM-D5	Tone Comp.
C9	.0025	200	73599	P688-0022	D6-252	1W5D25	GP2M-0025	6TM-D22	Tone Comp.
C10	120	500	39630	1468-00015	D6-121	5W5T15	GP2K-120	1FM-315	AF Amp. Plate
C11	.01	200	73561	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Audio Coupling
C12	.005	400	73920	P688-005	D6-502	PTE6D5	811-005	6TM-D5	Output Plate
C13	.05	400	73553	P488-05	DF-503	PTE4S5		72P51	Line Isolation
C14	.05	400	73553	P488-05	DF-503	PTE4S5		4TM-S5	Rect. Plate Bypass

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RCA VICTOR PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1	2 Meg	½	74702	Q13-139X †		BT-79 †	Volume Control - Tapped ⓐ 400KΩ

† File bushing to duplicate original

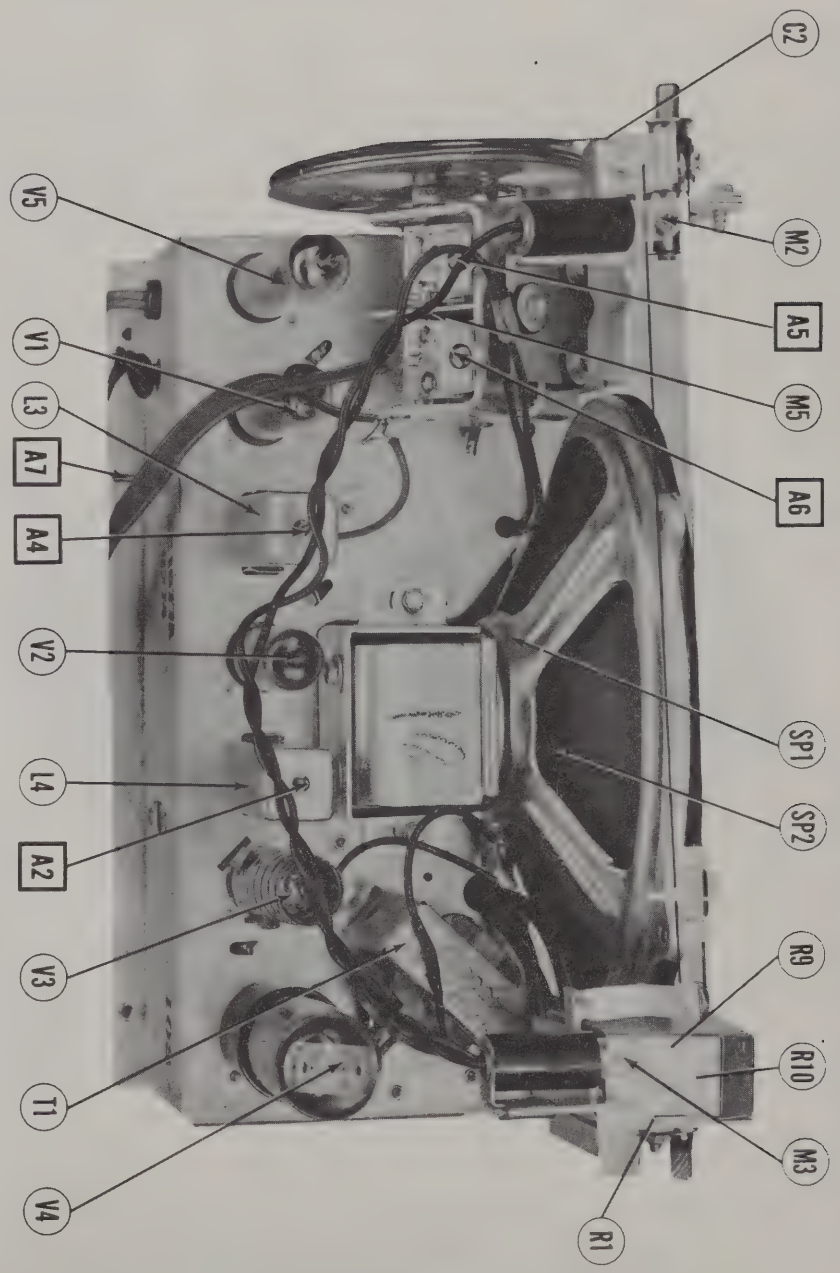
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RCA VICTOR PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
R2	270Ω	½			Osc. Coil Shunt
R3	22KΩ	½			Osc. Grid
R4	3.3Meg	½		BTS-3.3Meg	AVC Network
R5	470K	½		BTS-470K	AVC Network
R6	47KΩ	½		BTS-47K	Diode Filter
R7	68Ω	½			IF Amp. Cathode - See Note 2
R8	15Ω	½			IF Amp. Cathode - See Note 2
R9	2.7Meg	½		BTS-2.7Meg	Tone Compensation
R10	56KΩ	½		BTS-56K	Tone Compensation
R11	10Meg	½		BTS-10Meg	AF Amp. Grid
R12	220KΩ	½		BTS-220K	AF Amp. Plate
R13	470KΩ	½		BTS-470K	Output Grid
R14	150Ω	½		BTS-150	Output Cathode
R15	1000Ω	1		BTA-1000	Filter
R16	33Ω	½			Surge Limiter
R17	1Meg	½		BTS-1Meg	Phono Input Shunt

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: RCA VICTOR PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	INSTALLATION NOTES
T1	3000Ω	3.6Ω	330Ω Tap 18Ω	.6Ω	74654	A-3330 ①		RO-3	① Drill one new mounting hole

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: RCA VICTOR PART No.	VIKING PART No.	QUAM PART No.	INSTALLATION NOTES
	FIELD	V. C. IMP.				
SP1	PM	3.6Ω	74706	57J9 ②	57A1 ②	② Use Universal mounting brackets
	CONE DIA.	V. C. DIA.				
SP2	5"X7"	9/16"				

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: RCA VICTOR PART No.	MEISSNER PART No.	
L1A	Loop Ant.	1.6Ω		75909		Model 9Y510
B	Loop Ant.	1.6Ω		74703		Model 9Y511
L2	Osc. Coil	1Ω	5.2Ω	74448	14-1073	
L3	1st IF	13Ω	15Ω	75486		
L4	2nd IF	13Ω	15Ω	75487		

PHONO CARTRIDGE and NEEDLE

ITEM No.	REPLACEMENT DATA: RCA VICTOR PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	SHURE PART No. CARTRIDGE	SHURE PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE	REMARKS
M1A	75476	CAC-J	Q-33	W31AR	A53MG	34	0-1 or S-1	Model 9Y510
B	74067	CAC-J	Q-33	W31AR	A53MG	34	0-1 or S-1	Model 9Y511

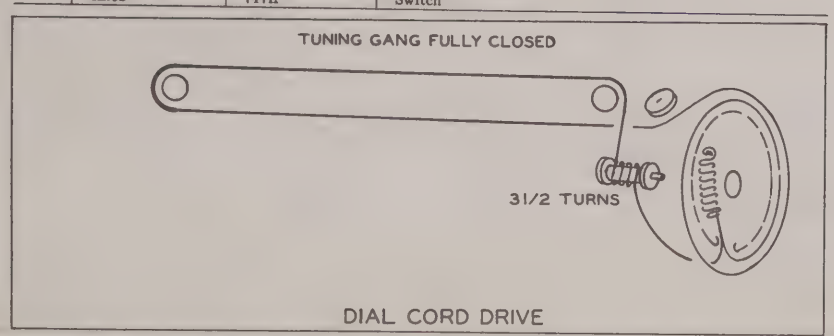
ASTATIC, SHURE AND ELECTRO-VOICE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED.

DIAL LIGHTS

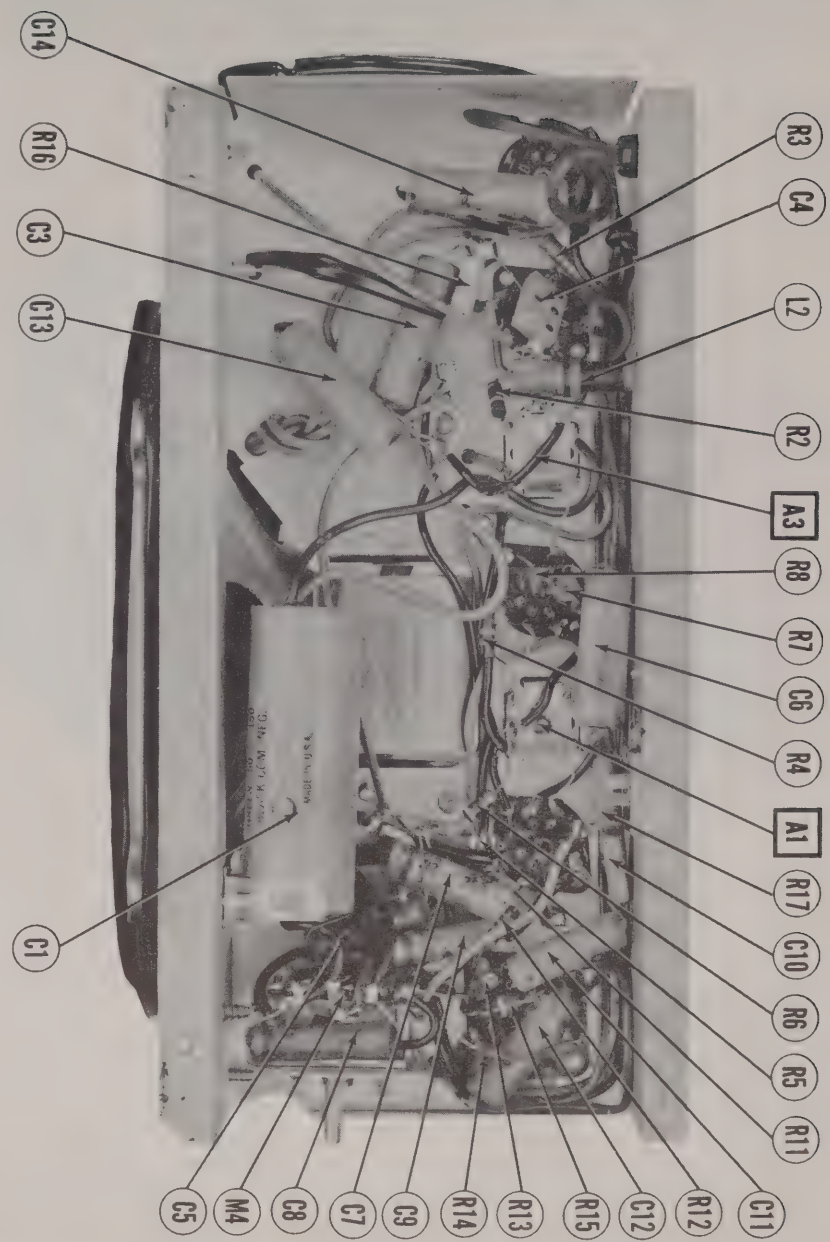
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: RCA VICTOR PART No.		NOTES
M2	Bayonet	3.2	.16	White	71116		Type No. 1490
M3	Bayonet	3.2	.16	White	71116		Type No. 1490

MISCELLANEOUS

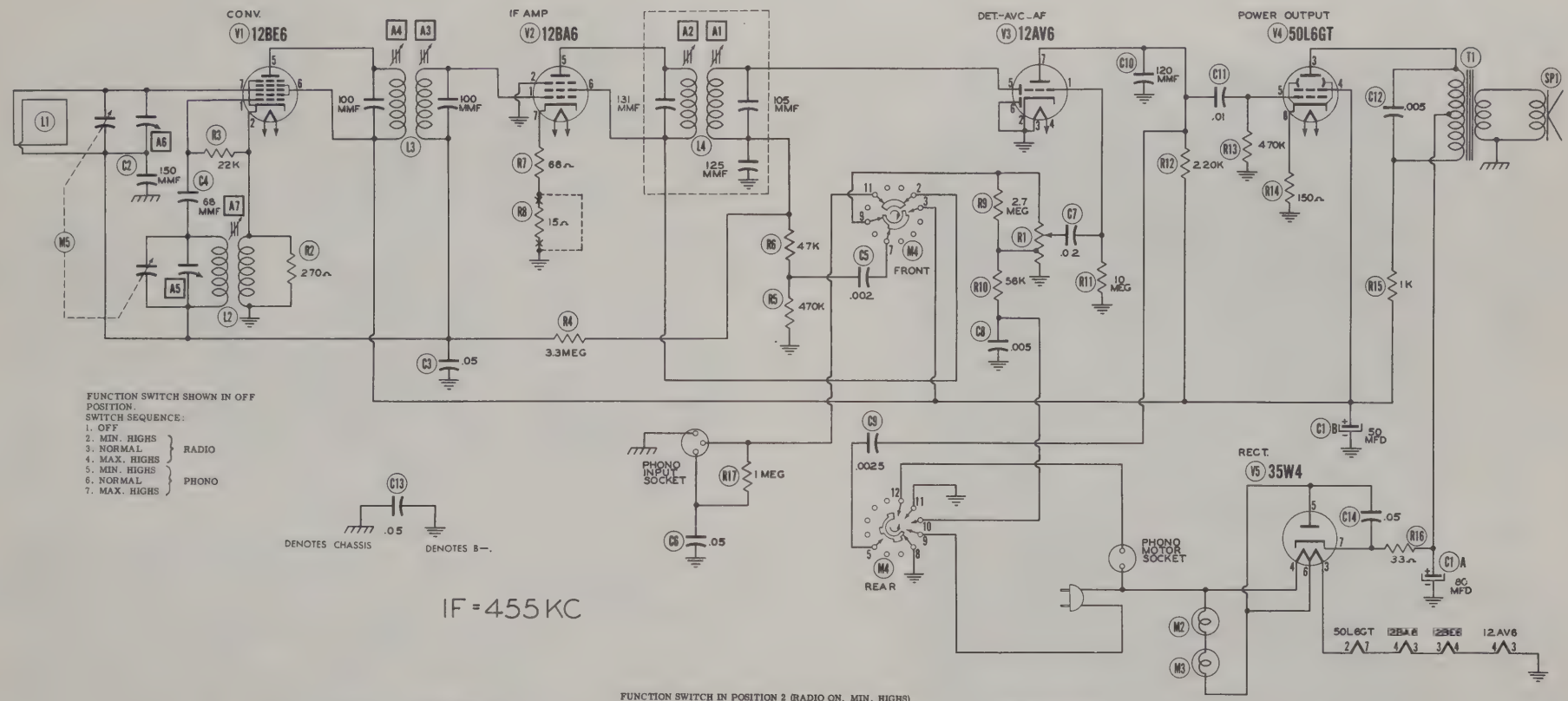
ITEM No.	PART NAME	RCA VICTOR PART No.	NOTES
M4	Switch	75910	Radio-Phono-Tone
M5	2 Gang Var. Cap.	74704	(35-555MMF, 20-195MMF)
	Cabinet	Y2292	Model 9Y510
	Cabinet	Y2137	Model 9Y511
	Dial	74722	
	Dial Pointer	74709	
	Knob	74710	Volume, Tuning
	Knob	74711	Switch



CHASSIS—BOTTOM VIEW



RCA VICTOR MODEL 9Y510



FUNCTION SWITCH SHOWN IN OFF POSITION.
SWITCH SEQUENCE:
1. OFF
2. MIN. HIGHS } RADIO
3. NORMAL } RADIO
4. MAX. HIGHS } RADIO
5. MIN. HIGHS } PHONO
6. NORMAL } PHONO
7. MAX. HIGHS } PHONO

DENOTES CHASSIS

DENOTES B—.

IF = 455 KC

FUNCTION SWITCH IN POSITION 2 (RADIO ON, MIN. HIGHS)

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12BE6	§-6VDC	0V	25VAC	13VAC	85VDC	85VDC	-.2VDC	
V 2	12BA6	-.2VDC	0V	25VAC	37VAC	85VDC	85VDC	-.8VDC	
V 3	12AV6	-.7VDC	0V	0V	13VAC	-.8VDC	0V	55VDC	
V 4	50L6GT	0V	85VAC	95VDC	85VDC	0V	100VDC	37VAC	6.4VDC
V 5	35W4	0V	0V	85VAC	117VAC	108VAC	108VAC	105VDC	

§ TAKEN WITH VACUUM TUBE VOLTMETER

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12BE6	22KΩ	1Ω	25Ω	13Ω	†1KΩ	†1KΩ	3.8Meg	
V 2	12BA6	3.8Meg	0Ω	25Ω	38Ω	†1KΩ	†1KΩ	83Ω	
V 3	12AV6	10Meg	0Ω	0Ω	13Ω	515KΩ	0Ω	†220KΩ	
V 4	50L6GT	Inf.	90Ω	†340Ω	†1KΩ	470KΩ	†50Ω	38Ω	150Ω
V 5	35W4	Inf.	0Ω	90Ω	125Ω	120Ω	120Ω	50KΩ	

† MEASURED FROM PIN 7 OF V5

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131-13

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

STROMBERG-CARLSON
MODELS AM-48, AM-49

STROMBERG-CARLSON
MODELS AM-48, AM-49

STROMBERG-CARLSON MODEL AM-48

TRADE NAME	Stromberg-Carlson, Models AM-48, AM-49
MANUFACTURER	Stromberg Carlson Co., 100 Carlson Rd., Rochester 3, New York
TYPE SET	Battery Operated Mobile Audio Amplifier
TUBES (FIVE)	Types 6AV6 Pre-Amp., 12AX7 AF Amp.-Phase Inv., (2) 6AQ5 Power Output, 6X4 Rectifier
POWER SUPPLY	6 Volt Storage Battery (Model AM-48), 12 Volt Storage Battery (Model AM-49)
RATING	6 Amp. @ 6.3 Volts DC (Model AM-48)

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PARTS LIST AND DESCRIPTIONS

STROMBERG-CARLSON
MODEL AM-48

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA. BASE TYPE	INSTALLATION NOTES
		STROM-CARL PART No.	STANDARD REPLACEMENT		
V1	Pre Amplifier	162066	6AV6	7BT	
V2	AF Amp.-Phase Inv	162070	12AX7	9A	
V3	Power Output	162069	6AQ5	7BZ	
V4	Power Output	162069	6AQ5	7BZ	
V5	Rectifier	162071	6X4	5BS	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	STROM-CARL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	15	350	111602	AF44J4A		UP2235C		TVL-3632	■ Filter
B	15	350							▲ Filter
C	25	25							Output Cathode
C2A	15	350	111602	AF44J4A				TVL-3632	■ Filter
B	15	350							▲ Filter
C	25	25							AF Amp. Phase Inv. Cath.
C3	.01	400	110540	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Audio Coupling
C4	.022	400	110542	P488-022	DF-203	PTE4S2		4TM-S22	Audio Coupling
C5	2.2		110677		TCZ-2.2				Neutralizing Cap
C6	.022	400	110542	P488-022	DF-203	PTE4S2		4TM-S22	Audio Coupling
C7	.022	400	110542	P488-022	DF-203	PTE4S2		4TM-S22	Audio Coupling
C8	.0022	1600	110576	P1688-0022		PTE16D2		MB-D27	Output Plate
C9	.0022	1600	110576	P1688-0022		PTE16D2		MB-D22	Output Plate
C10	.0082	1600	110603			PTE16D8		MB-D8	Buffer *
C11	.1	400		P488-1	DF-104	PTE4P1		4TM-P1	Hash Filter
C12	.1	400		P488-1	DF-104	PTE4P1		4TM-P1	Hash Filter
C13	.047	400	110544	P488-047	DF-503	PTE4S5		4TM-S47	Hash Filter
C14	.47	200	110533	P288-47		GT2P5		2TM-P47	Hash Filter

* Model AM-49 uses .01 MFD in this application. MFGRS Part No. 110580.

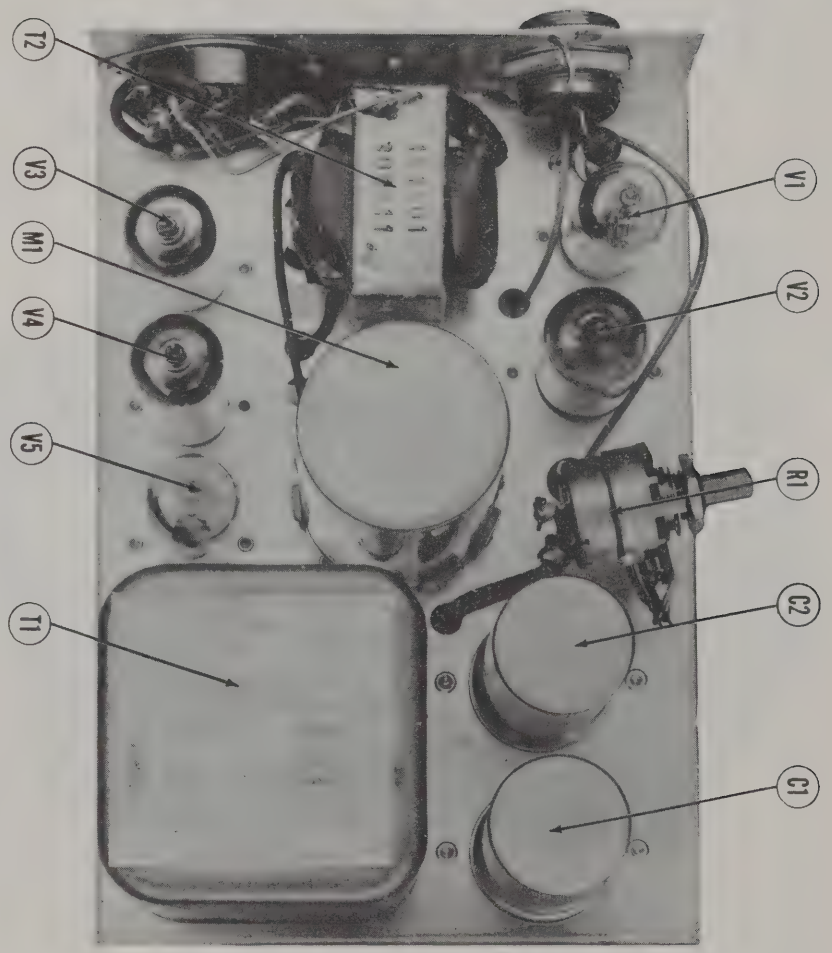
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	STROM-CAR PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	250KΩ	½	145604	Q13-130	AG-64-Z	B-51-S	Volume Control
B	Shaft		Not Req	Not Req	FS-3	Not Req	Attach to R1A per instructions
C	Switch		Not Req	76-1	SWB	Not Req	Attach to R1A per instructions

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	STROM-CARL PART No.	IRC PART No.	
R2	2.2Meg	½	28195	BTS-2.2Meg	Pre-Amp. Grid
R3	220KΩ	½	28183	BTS-220K	Pre-Amp. Plate
R4	220KΩ	½	28183	BTS-220K	Series Phono
R5	220KΩ	½	28183	BTS-220K	Phono Pre-Amp. Grid
R6	220KΩ	½	28183	BTS-220K	Phono Pre-Amp. Plate
R7	2200Ω	½	28162	BTS-2200	Phase Inv Cathode
R8	4300Ω	½	149359		Phase Inv. Grid
R9	220KΩ	½	28183	BTS-220K	Phase Inv. Plate
R10	220KΩ	½	28183	BTS-220K	Output Grid
R11	240Ω	2	149605	BW-2-240	Output Cathode - Wire Wound
R12	220KΩ	½	28163	BTS-220K	Output Grid
R13	1000Ω	½	281858	BTS-1000	Filter
R14	1000Ω	½	281858	BTS-1000	Filter
R15	560Ω	½	28155	BTS-560	Filter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	STROM-CARLSON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	6.3VDC @ 6A	520VCT @ .08ADC			161602 161764 ①			VT-6

① Used in Model AM-49, 13.2 Volt Primary

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		STROM-CAR PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	6KΩ CT	16Ω Taps @ 4Ω-8Ω	360CT	1.4Ω Taps @ .7Ω-1Ω	161601	A-3850			

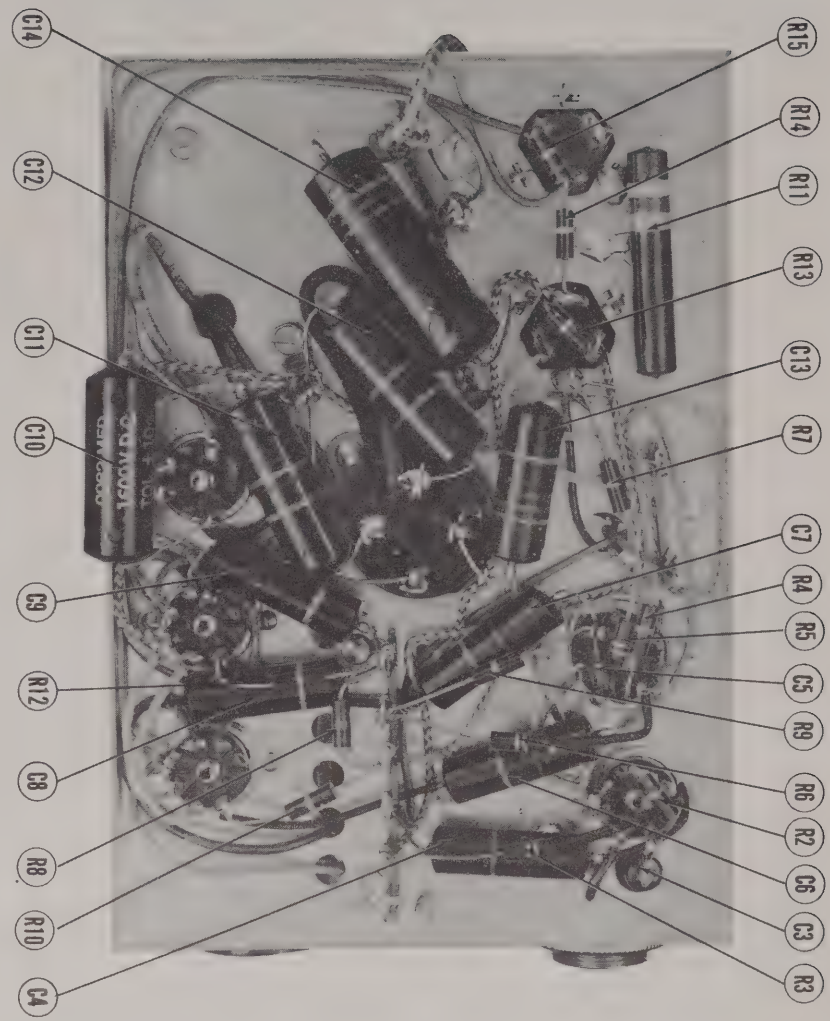
VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				INSTALLATION NOTES
				STROM-CAR PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	RADIART PART No.	
M1	INT	6.3V	115∿	46855 46374 ①		5506	5506	① Used in model AM-49

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			STROMBERG-CARLSON PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M2	SFE	14 Amp.	128603		307014	155014	

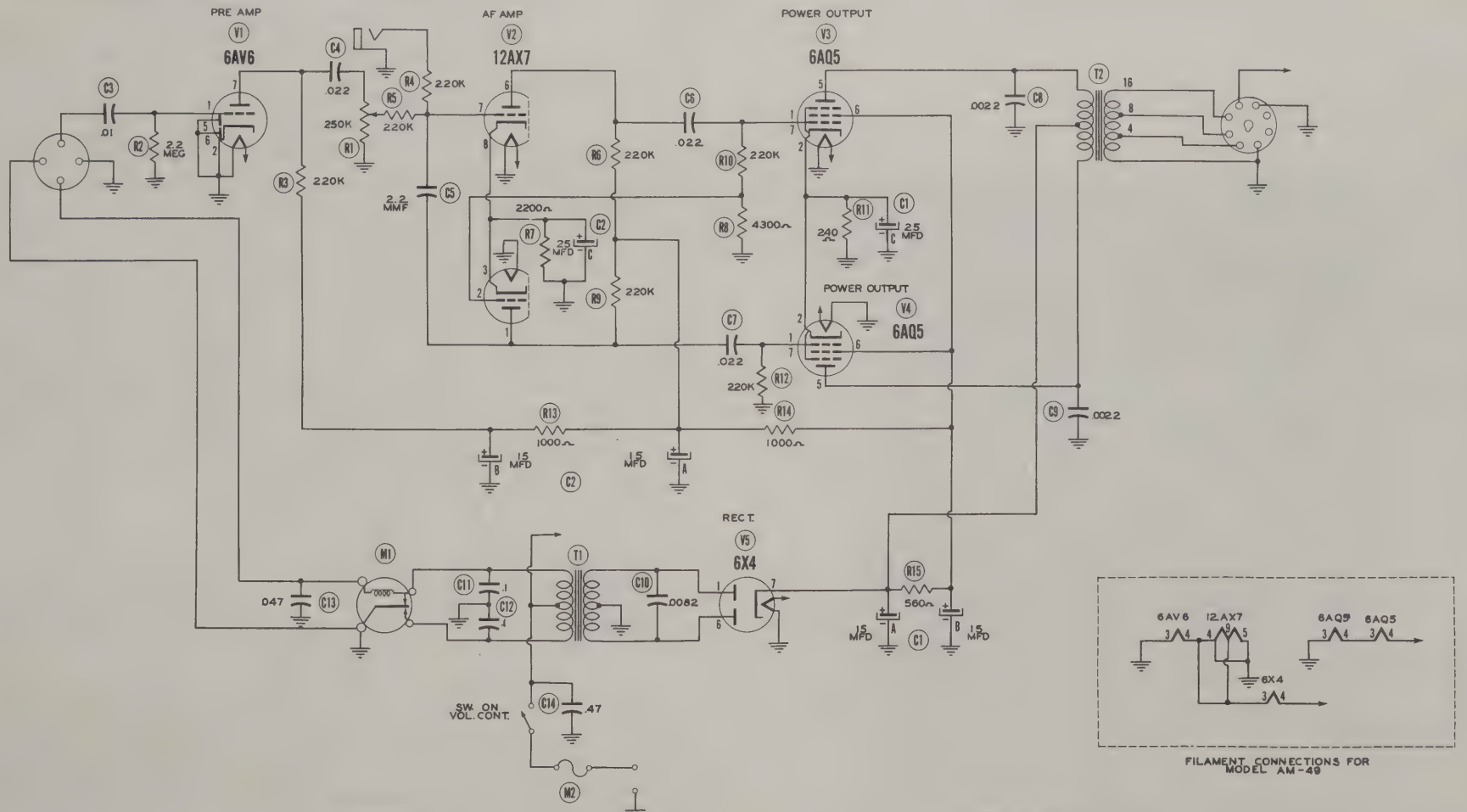
CHASSIS—BOTTOM VIEW



SET 131 FOLDER 14

STROMBERG-CARLSON MODEL AM-48

STROMBERG-CARLSON MODEL AM-48



FILAMENT CONNECTIONS FOR MODEL AM-49

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AV6	-.6VDC	0V	0V	6.3VDC	0V	0V	80VDC		
V 2	12AX7	140VDC	0V	1.4VDC	0V	0V	140VDC	0V	1.4VDC	6.3VDC
V 3	6AQ5	0V	13VDC	0V	6.3VDC	205VDC	207VDC	0V		
V 4	6AQ5	0V	13VDC	0V	6.3VDC	205VDC	207VDC	0V		
V 5	6X4	240VAC	0V	0V	6.3VDC	0V	240VAC	215VDC		

RESISTANCE READINGS –

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AV6	2.2Meg	0Ω	0Ω	.6Ω	0Ω	0Ω	†222KΩ		
V 2	12AX7	†220KΩ	4.3KΩ	2.2KΩ	0Ω	0Ω	†220KΩ	220KΩ	2.2KΩ	.6Ω
V 3	6AQ5	225KΩ	240Ω	0Ω	.6Ω	†180Ω	†560Ω	225KΩ		
V 4	6AQ5	220KΩ	240Ω	0Ω	.6Ω	†180Ω	†560Ω	220KΩ		
V 5	6X4	225Ω	Inf.	0Ω	.6Ω	Inf.	225Ω	30KΩ		

† MEASURED FROM PIN 7 OF V5

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131-14

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - All controls at minimum, proper output load connected.

PHOTOFACT* Folder

SYLVANIA MODELS 5150M, 7110XFA, 7120MFA, 7130MFA, 7140MA, WA, 7150M, 7160M

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Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

MODEL 7140MA

SYLVANIA MODELS 5150M, 7110XFA, 7120MFA, 7130MFA, 7140MA, WA, 7150M, 7160M

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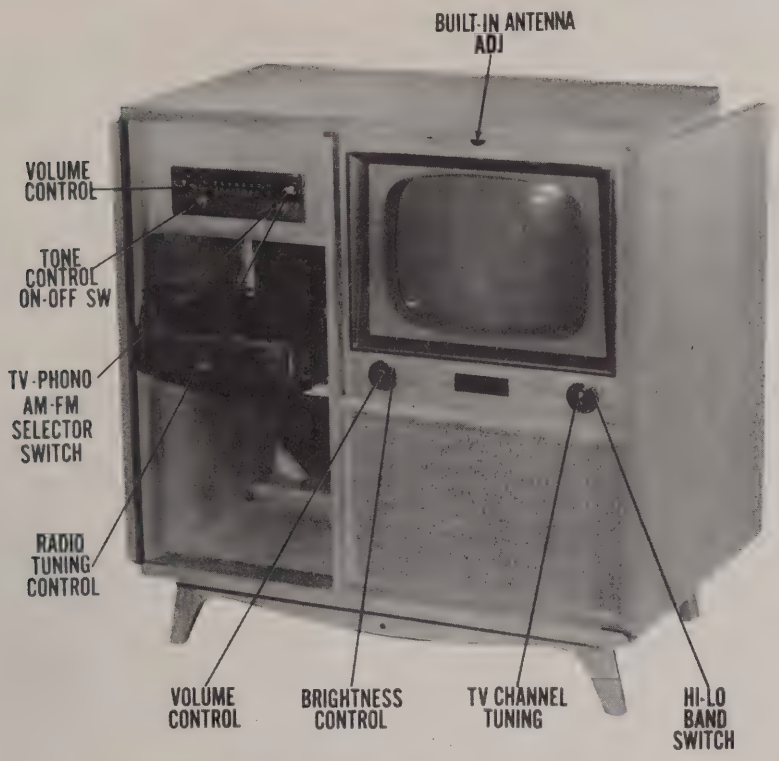
DATE 5-51 SET 131 FOLDER 15

PHOTOFACT* Folder
*TRADE MARK

SYLVANIA MODELS 5150M, 7110XFA, 7120MFA, 7130MFA, 7140MA, WA, 7150M, 7160M



SYLVANIA MODEL 7160B

TRADE NAME	Sylvania, Models 5150M (Ch. 1-274), 7110XFA, 7120MFA, 7130MFA (Ch. 1-442), 7140MA, 7140WA (Ch. 1-437), 7150M, 7160B (Ch. 1-357)
MANUFACTURER	Sylvania Elect. Prod., Inc., Colonial Radio And Tel. Div., 254 Rano St., Buffalo, New York
TYPE SET	TV-AM-FM-Phono Combination Receiver (Some Models TV "Only")
TUBES	Twenty Five (TV "Only" Receivers) Twenty Nine (Combination Receivers)
POWER SUPPLY	110-120 Volts AC- 60 Cycle RATING 2.5 Amp. @ 117 Volts AC (TV) 1.7 Amp. @ 117 Volts AC (Radio)
TUNING RANGE	(TV) Channels 2 thru 13 (FM) 88-108MC (AM) 540-1600KC

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FOR SERVICE DATA ON RECORD CHANGER UNIT - SEE V-M MODEL 950 PHOTOFACT FOLDER 13 - SET NO. 107 OR RECORD CHANGER MANUAL CM-3.

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DATE 5-51 SET 131 FOLDER 15

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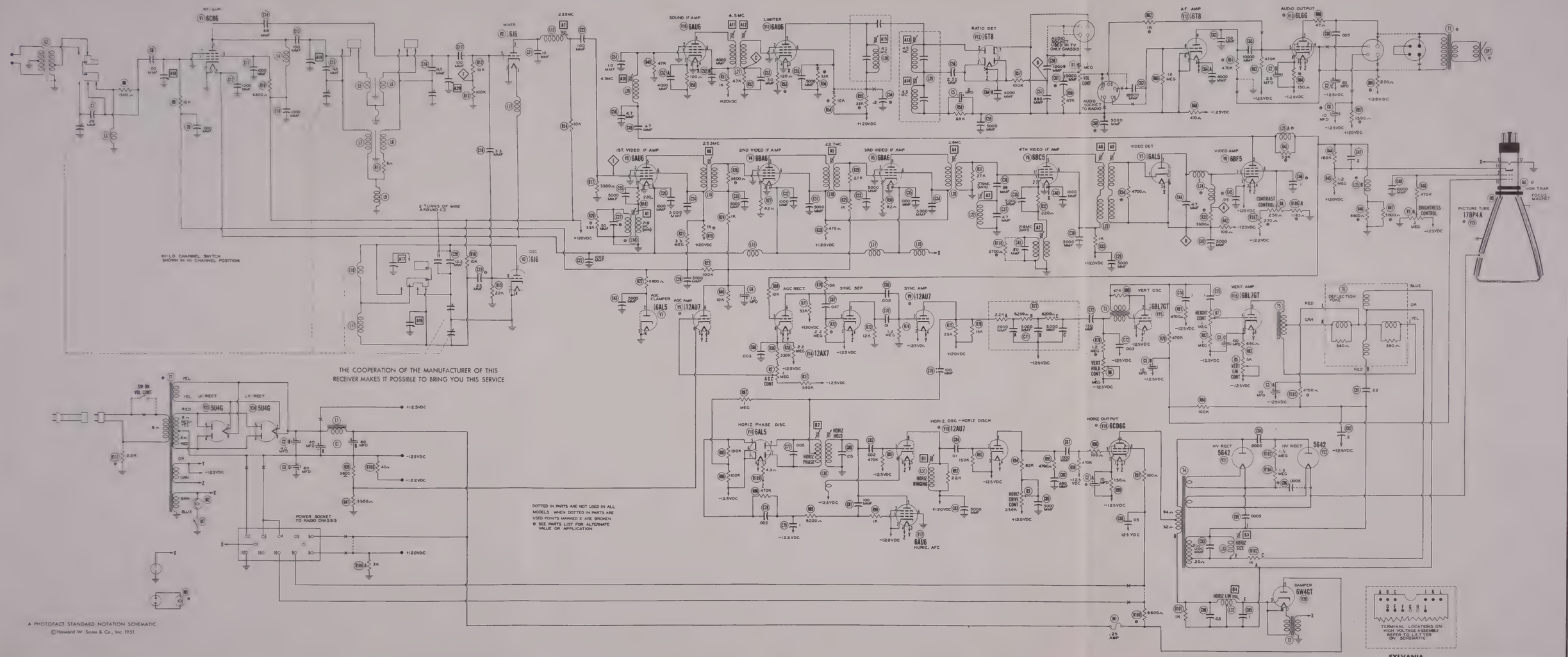
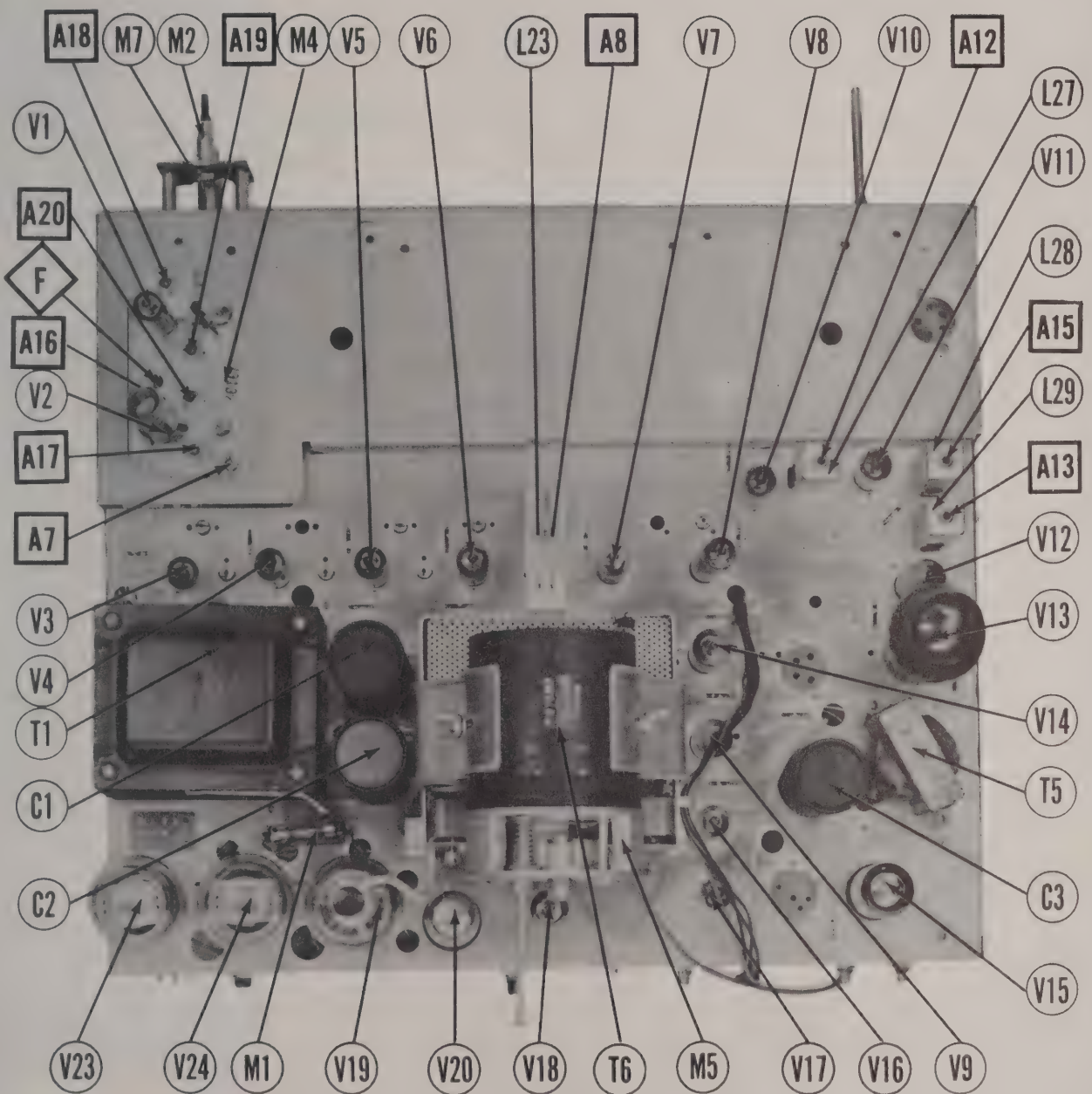


SYLVANIA

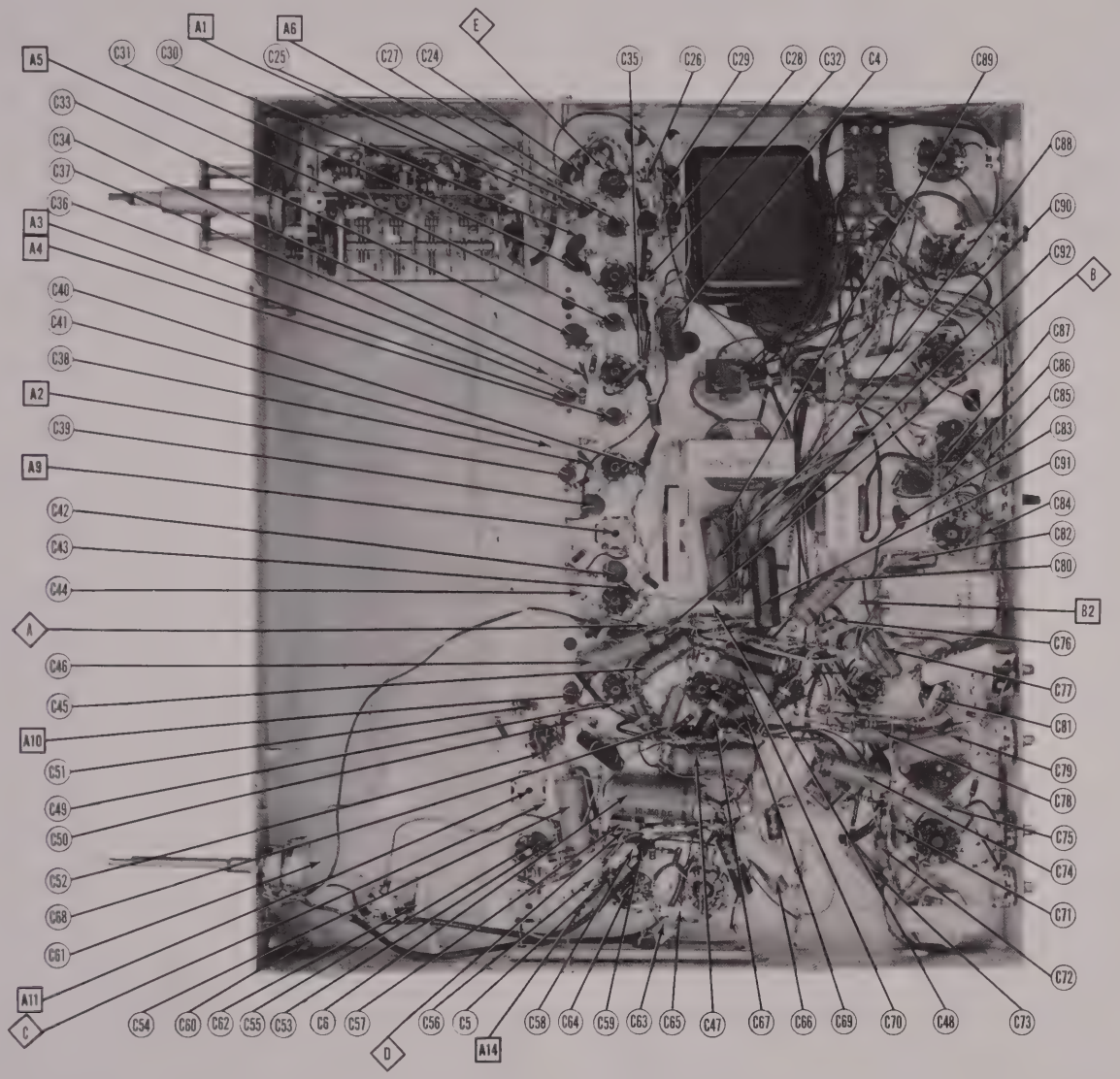
MODELS 5150M, 7110XFA, 7120MFA, 7130MFA, 7140MA, WA, 7150M, 7160M

SYLVANIA

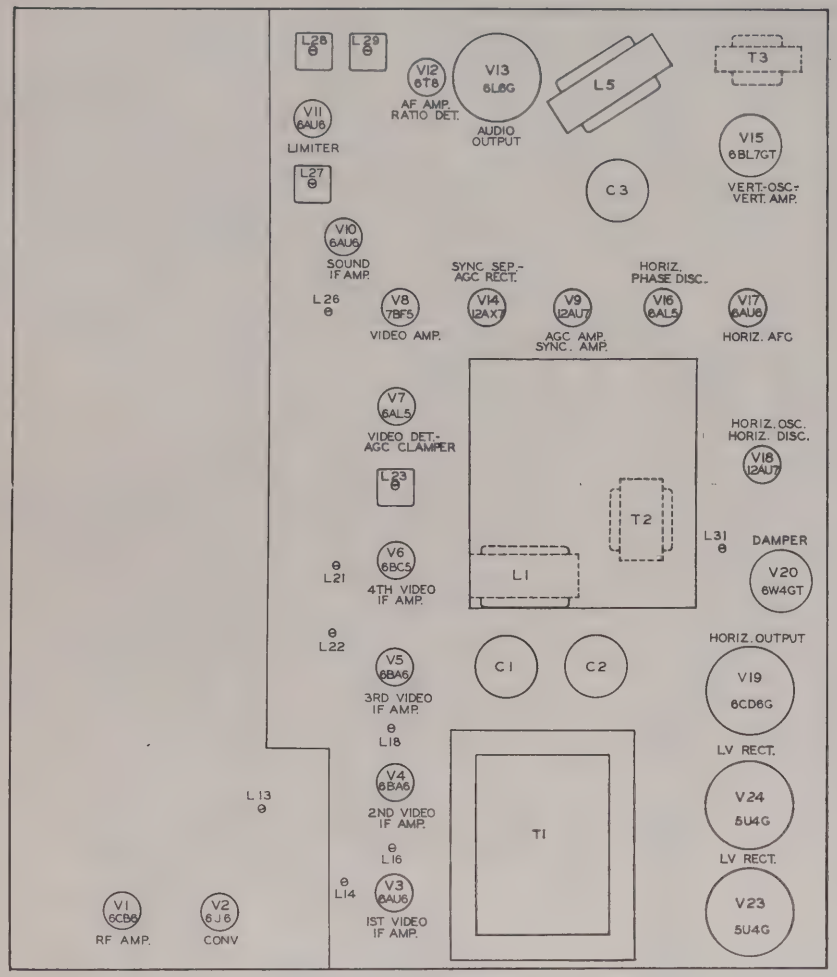
MODELS 5150M, 7110XFA, 7120MFA, 7130MFA, 7140MA, WA, 7150M, 7160M



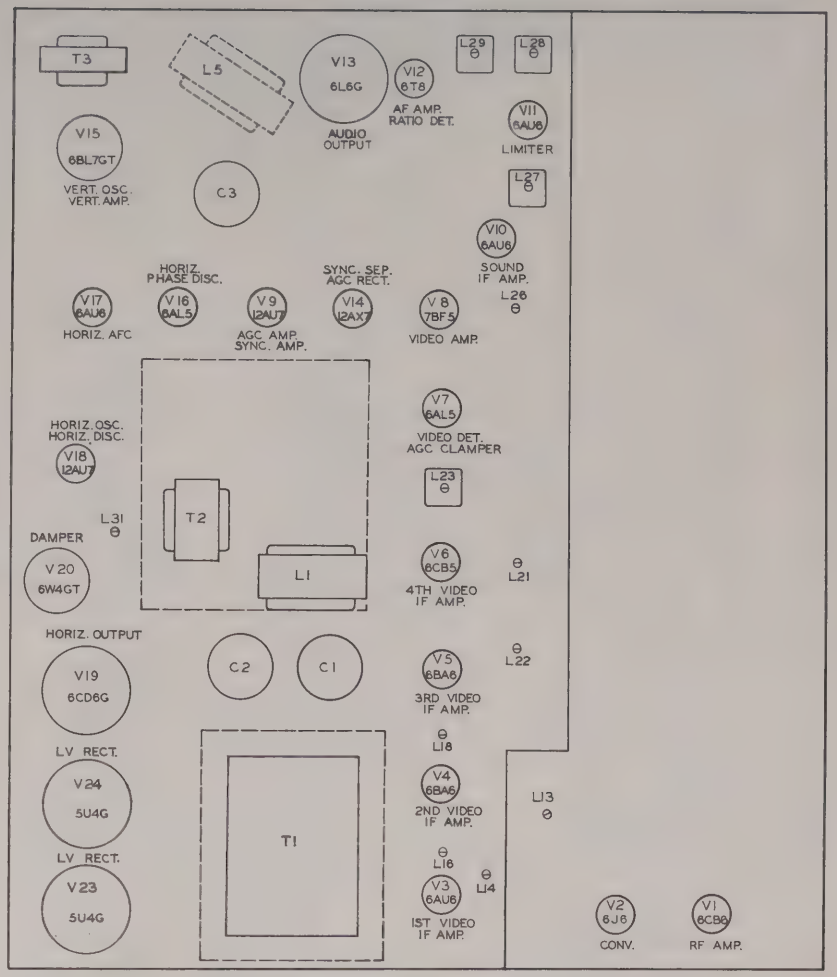
CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



TOP VIEW



BOTTOM VIEW

TUBE PLACEMENT CHART

TV ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The end of the high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube to disable the high voltage.
The interconnecting cables between the TV and radio set should be in place.
Turn the function selector switch to "TV" (maximum clockwise).

VIDEO IF ALIGNMENT

Remove the converter tube (V2) from its socket and replace it with a 6J6 which has pin 1 removed. This will prevent the possibility of erroneous indications.
Connect the negative lead of a 3 volt battery to the AGC line (Junction of R23 and R24).
During video IF alignment the common lead of the VTVM is connected to approximately 125 volts with respect to chassis.
Avoid touching or grounding the VTVM case.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube (V2). Low side to chassis.	Not used	21.9MC (Unmod.)	Any	USE VTVM DC probe to Point (A) Common to Point (B)	A1, A2	Adjust for MINIMUM deflection.
2.	"	"	"	27.9MC	"	"	A3	"
3.	"	"	"	26.0MC	"	"	A4	Adjust for maximum deflection.
4.	"	"	"	22.7MC	"	"	A5	"
5.	"	"	"	25.3MC	"	"	A6	"
6.	"	"	"	23.5MC	"	"	A7	"
7	.005MFD	High side to pin 1 (grid) of 6BC5 (V8). Low side to chassis.	24MC (10MC SWP)	21.9MC 23.0MC 27.0MC	"	Vert. amp. to Point (A) Low side to chassis.	A8, A9	Adjust for response curve similar to figure 1.
8.	Direct	High side to an ungrounded tube shield floating over dummy converter tube (V2). Low side to chassis.	"	22.75MC 26.4MC	"	"		Check for response curve similar to figure 2. If necessary retouch A5 thru A9 for proper response.

SOUND IF ALIGNMENT

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120 ∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	.005MFD	High side to Point A. Low side to chassis.	4.5MC (450KC SWP)	4.5MC	Any	Vert. amp. to Point (C). Low side to chassis.	A10, A11, A12	Adjust for maximum amplitude and symmetry as per figure 3.
10.	"	"	"	"	"	Vert. amp. to Point (D). Low side to chassis.	A13, A14, A15	Adjust A13 and A14 simultaneously to place 4.5MC marker at center of crossover lines as per figure 4. Adjust A15 for maximum amplitude and straightness of crossover lines.

TUNER ALIGNMENT

The use of two marker generators is required to align this tuner.
Marker generator number 1 is connected in parallel with the sweep generator thru a 2 or 3MMF capacitor, (if the sweep generator has a built-in marker it will be used for marker number 1). The frequency of marker number 1 will be indicated by an asterisk (*). Marker generator number 2 is connected through a 2 or 3 MMF capacitor to the grid of the first video IF ampifier, (alignment point (E)). The frequency of marker number 2 will be indicated by a dagger (†).
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

HIGH BAND OSCILLATOR ALIGNMENT

Turn the band switch to "high band".

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	177MC (10MC SWP)	*175.25MC †21.9MC	Tuning gang fully closed.	Vert. amp. thru detector (figure 5) to Point (E). Low side to chassis.	L10	Remove the bottom cover and adjust turn spacing of L10 until markers coincide at 100% response as shown in figure 6. If markers separate when cover is replaced, repeat adjustment of L10 compensating for change and replace cover. Repeat this procedure until markers coincide with bottom cover in place.
12.	"	"	213MC (10MC SWP)	*215.75MC †26.4MC	Tuning gang fully open	"	A16	Adjust A16 until markers coincide as in step 11. Recheck low end and if necessary repeat steps 11 and 12 until proper oscillator range is obtained.

LOW BAND OSCILLATOR ALIGNMENT

Turn the band switch to "low band".

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
13.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	57MC (10MC SWP)	*56.75MC †21.9MC	Tuning gang fully closed	Vert. amp. thru detector (figure 5) to Point (E). Low side to chassis.	L11	Remove bottom cover and adjust coil turns until markers coincide. If markers separate when cover is replaced, repeat adjustment of L11 compensating for change and replace cover. Repeat this procedure until markers coincide with cover in place.
14.	"	"	85MC (10MC SWP)	*84.35MC †26.4MC	Tuning gang fully open.	"	A17	Adjust A17 until markers coincide. Recheck low end and if necessary repeat steps 13 and 14 until proper range is obtained.

FIG. 1

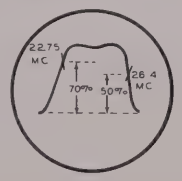


FIG. 2

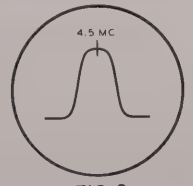


FIG. 3

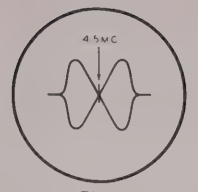


FIG. 4

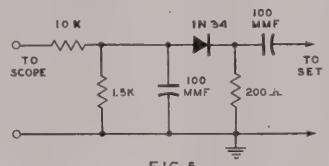


FIG. 5

FIG. 6

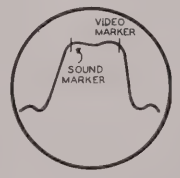


FIG. 7

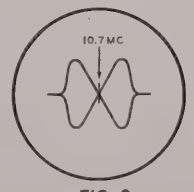


FIG. 8

TV ALIGNMENT INSTRUCTIONS (CONT.)

HIGH BAND RF ALIGNMENT

Turn the band switch to "high band".
For step 15 set the tuner to channel 7 by connecting the scope and generators as during oscillator alignment
Set the sweep generator to channel 7. Set marker number 1 to 175.25MC and marker number 2 to 26.4MC. Turn the tuning control until the markers coincide.
For step 16 set the tuner to channel 13 by injecting 215.75MC and 21.9MC and turn tuning control until markers coincide.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
15.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	177MC (10MC SWP)	175.25MC 179.75MC	7	Vert. amp. thru 10KΩ to Point (F). Low side to chassis.	L3, L5, L6	Adjust inductance by pushing coils on or off the brass plugs for response similar to figure 7. L5 and L6 are properly adjusted when a slight change causes a change of amplitude without noticeable change in band width. L3 is properly adjusted when a slight change in inductance causes the peaks to rock evenly. The band width is adjusted by altering the dress of L5 and L6 ground leads past the shield cutout.
16.	"	"	213MC (10MC SWP)	211.25MC 215.75MC	13	"	A18, A19, A20	Replace bottom cover. Adjust for response curve similar to figure 7. Recheck channel 7 response. If necessary make slight compromise adjustments of L3, L5 and L6.

LOW BAND RF ALIGNMENT

Turn the band switch to "low band".
For step 17 set tuning control to channel 2 by injecting a 59.75MC marker and a 21.9MC marker and tuning until markers coincide.
For step 18 set tuning control to channel 6 using 83.25MC and 26.4MC.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
17.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	57MC (10MC SWP)	55.25MC 59.75MC	2	Vert. amp. thru 10KΩ to Point (F). Low side to chassis.	L2, L7, L8, L9	Expand or compress turns of L2, L7 and L8 for maximum amplitude of response. Adjust L9 for proper band width as shown in figure 7. L7 and L8 are properly adjusted when a slight change causes a reductance in amplitude without noticeable narrowing of the band width. L2 is properly adjusted when a slight change causes the peaks to rock evenly. Replace bottom cover. If response changes make slight compromise adjustments of L2, L7, L8 and L9 as needed to obtain proper response with bottom cover in place.
18.	"	"	85MC (10MC SWP)	83.25MC 87.75MC	6	"		Check the response of channel 6. If the markers fall below 70% or either peak falls below 70% make compromise adjustments of L2, L7, L8 and L9. Recheck channels 2 to see that it has not been seriously effected.

RADIO ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTIING ALIGNMENT

Remove the colored dial backplate to expose the dummy dial scale.
To set pointer, turn tuning cap fully closed and set pointer to last referance mark at low frequency end of dial.

AM ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
19.	.1MFD	High side to pin 1 (grid) of 7F8 (V26). Low side to chassis.	455KC (400 ∿ Mod.)	AM (Second Pos. CW)	Tuning gang fully open.	Across voice coil	A21, A22, A23, A24, A25	Adjust for maximum output.
20.		Loop	1600KC	"	1600KC	"	A26	Fashion loop of several turns of wire and radiate signal into receiver loop. Adjust for max.
21.		Loop	1400KC	"	Tune for max. output.	"	A27	"

FM IF ALIGNMENT

Use fequency modulated signal with 60 ∿ modulation and 450KC sweep. Use 120 ∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
22.	.005MFD	High side to pin 1 (grid) of 7F8 (V26). Low side to chassis.	10.7MC (Unmod.)	FM (max. CW)	Tuning gang fully open	USE VTVM DC probe to Point (G). Common to chassis.	A28, A29, A30, A31	Adjust for maximum deflection. Attenuate signal generator to maintain 2.5 volt reading.
23.	"	"	10.7MC (450KC SWP)	"	Point of non-interference	Vert. amp. to Point (H). Common to chassis.	A32, A33, A34	Adjust A32 and A33 simultaneously so 10.7MC occurs at center of crossover lines as per figure 8. Adjust A34 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
24.	300Ω carbon resistor	High side thru 300Ω to ungrounded FM antenna terminal. Low side to chassis.	108MC (Unmod.)	FM	108MC	DC probe to Point (G). Common to chassis.	A35	Adjust for maximum deflection. If two points of maximum are found, use th one with trimmer at least capacity.
25.	"	"	106MC	"	106MC	"	A36	Adjust for maximum deflection

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	0V -.3VDC	0V	0V	6.3VAC	115VDC	95VDC	0V		
V 2	6J6	65VDC	70VDC	6.3VAC	0V	-1.8VDC	§-4.4VDC	0V		
V 3	6AU6	0V	0V	0V	6.3VAC	115VDC 110VDC	115VDC 110VDC	1.4VDC		
V 4	6BA6	0V -.2VDC	0V	0V	6.3VAC	115VDC 100VDC	115VDC 100VDC	1.2VDC .6VDC		
V 5	6BA6	0V -.2VDC	0V	0V	6.3VAC	115VDC 100VDC	115VDC 100VDC	1.2VDC .6VDC		
V 6	6BC5	0V	1.6VDC	0V	6.3VAC	115VDC 110VDC	115VDC 110VDC	1.6VDC		
V 7	6AL5	#0V	-.3VDC	6.3VAC	0V	0V	#0V	#-.9VDC		
V 8	6BF5	#-.7VDC	#0V	#0V	#6.3VAC	#100VDC #65VDC	#45VDC #25VDC	#-.7VDC		
V 9	12AU7	#115VDC	#-.5VDC	#0V	#0V	#0V	#130VDC	#-33VDC #-50VDC	#70VDC	#6.3VAC
V 10	6AU6	-.1VDC	0V	0V	6.3VAC	105VDC	105VDC	.9VDC		
V 11	6AU6	-.1VDC	0V	6.3VAC	0V	50VDC	80VDC	.4VDC		
V 12	6T8	#-.4VDC	#-.8VDC	#-.4VDC	#0V	#6.3VAC	#.2VDC	#.2VDC	#-2.3VDC	#55VDC
V 13	6L6G	0V	#0V	#220VDC	#240VDC	#0V	#220VDC	#6.3VAC	#12VDC	
V 14	12AX7	#130VDC	#-2.5VDC #-3.8VDC	#0V	#6.3VAC	#6.3VAC	#245VDC	#105VDC #65VDC	#105VDC #75VDC	#0V
V 15	6BL7GT	#-65VDC #-85VDC	#220VDC #150VDC	#0V	#0V	#410VDC #250VDC	#38VDC #10VDC	#6.3VAC	#0V	
V 16	6AL5	#0V	#-22VDC	#5VAC	#0V	#.2VDC	#0V	#-22VDC		
V 17	6AU6	#0V	#4VDC	#0V	#6.3VAC	#130VDC	#130VDC	#4VDC		
V 18	12AU7	#110VDC #40VDC	#-60VDC	#0V	#0V	#0V	#250VDC	#-20VDC	#.1VDC	#6.3VAC
V 19	6CD6G	#165VDC #155VDC	#6.3VAC	#23VDC #18VDC	#0V #-20VDC	#0V #.20VDC	#165VDC #155VDC	#0V	#165VDC #155VDC	TOP CAP *
V 20	6W4GT	-115VDC	0V	250VDC	0V	120VDC	-15VDC -80VDC	250VDC	250VDC	
V 21	5642	* DO NOT MEASURE								
V 22	5642	* DO NOT MEASURE								
V 23	5U4G	0V	125VDC	0V	130VAC	0V	130VAC	0V	125VDC	
V 24	5U4G	0V	125VDC	-40VDC -50VDC	130VAC	0V	130VAC	-25VDC -27VDC	125VDC	
V 25	17BP4A	6.3VAC	-115VDC	PIN 10 210VDC	PIN 11 -23VDC	PIN 12 0V				

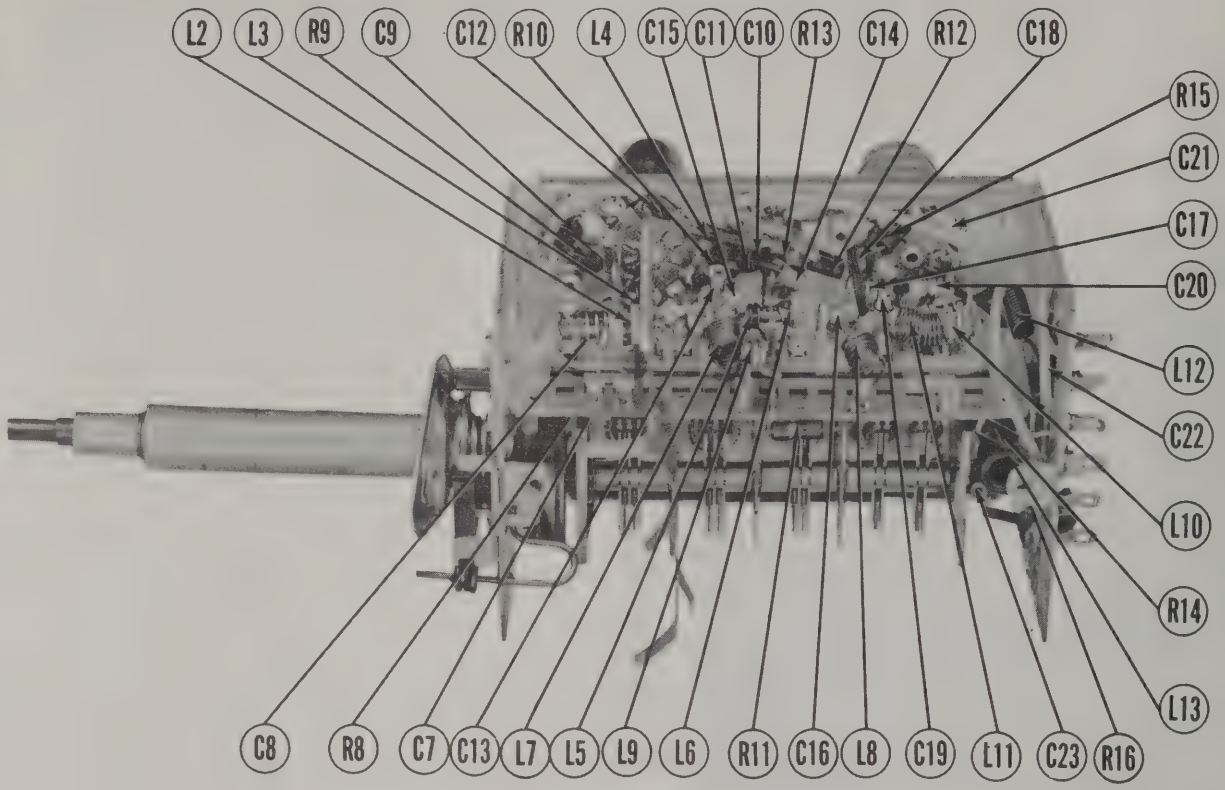
FUNCTION SWITCH IN TV POSITION
§ TAKEN WITH VACUUM TUBE VOLTMETER
# MEASURED FROM -125VDC POINT
* DO NOT MEASURE
VOLTAGE AND RESISTANCE MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED

RESISTANCE READINGS

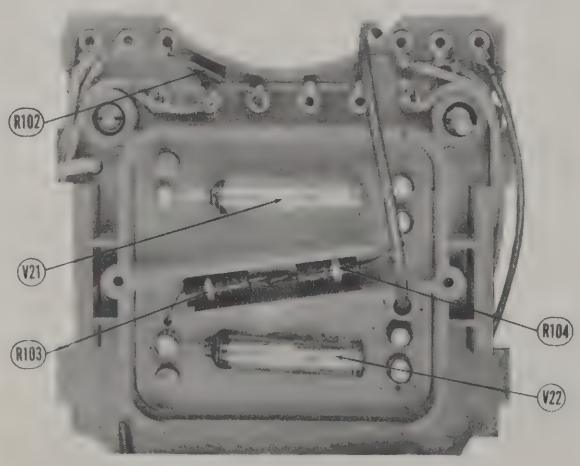
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	120KΩ	0Ω	0Ω	.1Ω	†40Ω	†6.8KΩ	0Ω		
V 2	6J6	†10KΩ	†10KΩ	.1Ω	0Ω	110KΩ	22KΩ	0Ω		
V 3	6AU6	3.3KΩ	0Ω	0Ω	.1Ω	†1KΩ	†1KΩ	220Ω		
V 4	6BA6	11KΩ	0Ω	0Ω	.1Ω	†510Ω	†510Ω	82Ω		
V 5	6BA6	11KΩ	0Ω	0Ω	.1Ω	†510Ω	†510Ω	82Ω		
V 6	6BC5	.7Ω	220Ω	0Ω	.1Ω	†1KΩ	†1KΩ	220Ω		
V 7	6AL5	#100Ω	115KΩ	.1Ω	0Ω	0Ω	#100Ω	#3.4KΩ		
V 8	6BF5	#3.4KΩ	#0Ω	#0Ω	#.1Ω	†6KΩ	#315Ω #550Ω	#3.4KΩ		
V 9	12AU7	†12KΩ	1.2Meg	#0Ω	#0Ω	#0Ω	10KΩ	#560KΩ #1.1Meg	2.2KΩ	#.1Ω
V 10	6AU6	47KΩ	0Ω	0Ω	.1Ω	†1KΩ	†1KΩ	100Ω		
V 11	6AU6	47KΩ	0Ω	.1Ω	0Ω	†33KΩ	†10KΩ	120Ω		
V 12	6T8	Inf.	#68KΩ	Inf.	#0Ω	#.1Ω	#470Ω	#470Ω	#15Meg	†470KΩ
V 13	6L6G	Inf.	#0Ω	†535Ω	†1.5KΩ	#470KΩ	†490Ω	#.1Ω	#150Ω	
V 14	12AX7	12KΩ	#2.2Meg	#0Ω	#.1Ω	#.1Ω	†33KΩ	13KΩ	#1.1Meg	#0Ω
V 15	6BL7GT	#1.2Meg #2.2Meg	▲570KΩ	#0Ω	#1Meg #2Meg	▲5.5KΩ	#5.7KΩ #680Ω	#.1Ω	#0Ω	
V 16	6AL5	#0Ω	#1.1Meg	#2.7Ω	#0Ω	#200KΩ	#0Ω	#1.1Meg		
V 17	6AU6	#680KΩ	#47Ω	#0Ω	#.1Ω	40Ω	0Ω	#47Ω		
V 18	12AU7	†82KΩ †330KΩ	#150KΩ	#0Ω	#0Ω	#0Ω	†80Ω	#470KΩ	#10Ω	#.1Ω
V 19	6CD6G	†6.8KΩ	#.1Ω	#150Ω	#470KΩ	#470KΩ	†6.8KΩ	#0Ω	†6.9KΩ	TOP CAP ▲ 40Ω
V 20	6W4GT	#470KΩ	Inf.	160KΩ	Inf.	†40Ω	†85KΩ †335KΩ	▲.4Ω	▲0Ω	
V 21	5642	ALL CONNECTIONS INFINITE RESISTANCE EXCEPT PLATE ▲ 130Ω								
V 22	5642	ALL CONNECTIONS INFINITE RESISTANCE								
V 23	5U4G	Inf.	3KΩ	Inf.	8Ω	Inf.	8Ω	Inf.	3KΩ	
V 24	5U4G	Inf.	3KΩ	#1.1KΩ	8Ω	Inf.	8Ω	#0Ω	3KΩ	
V 25	17BP4A	.1Ω	470KΩ	PIN 10 ▲100KΩ	PIN 11 180KΩ	PIN 12 0Ω				

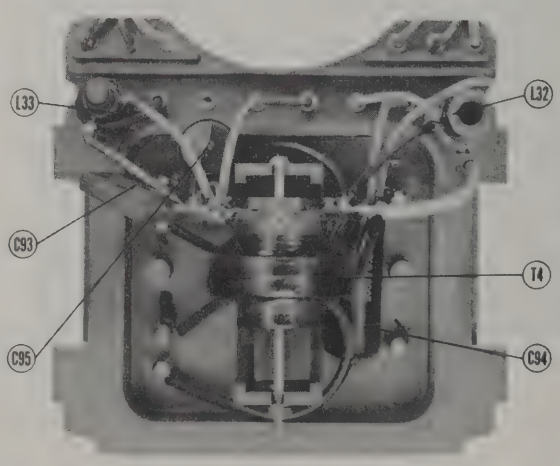
FUNCTION SWITCH IN TV POSITION
† MEASURED FROM PIN 8 OF V24
# MEASURED FROM -125VDC POINT
▲ MEASURED FROM PIN 3 OF V20

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.

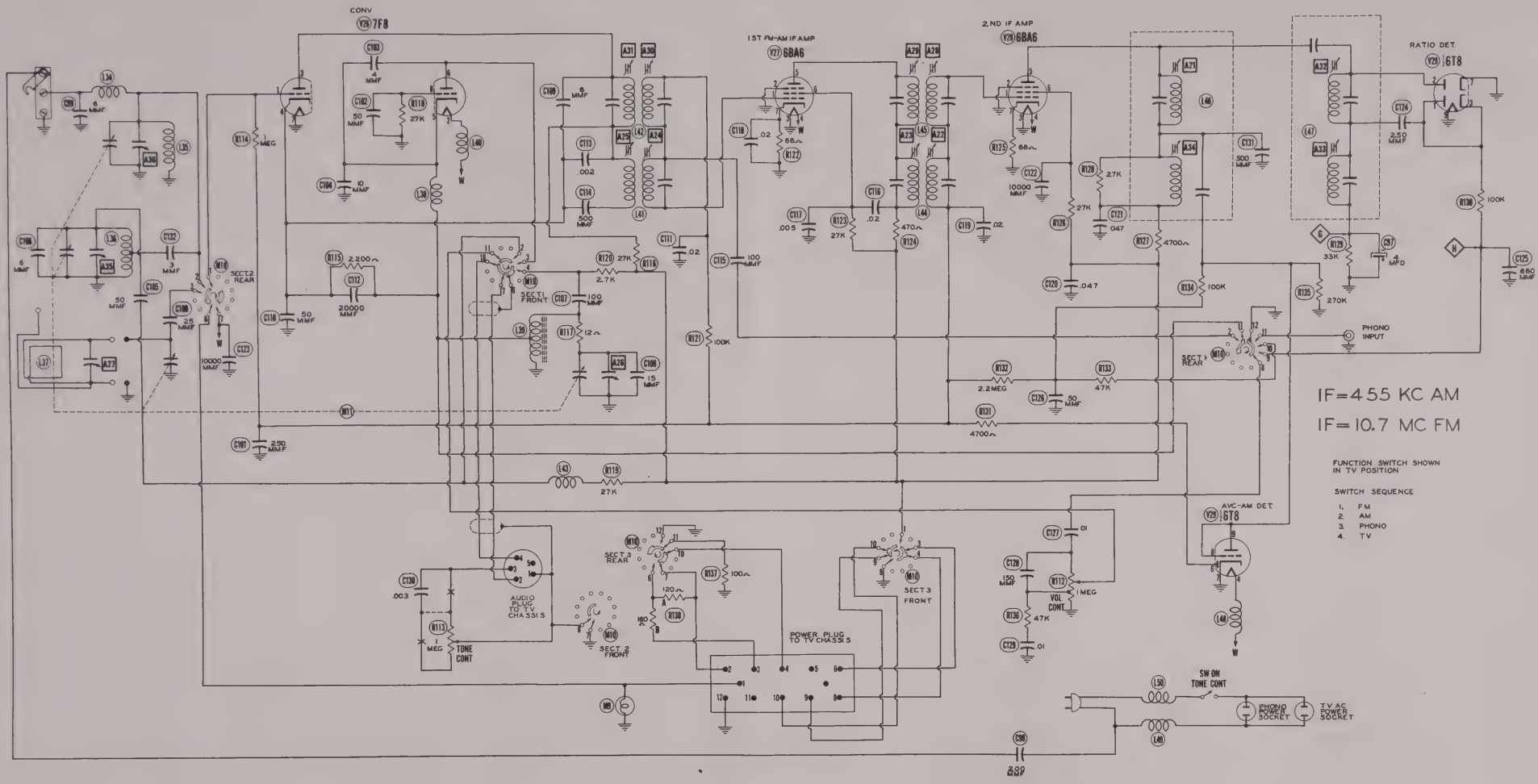


RF TUNER





HIGH VOLTAGE SUPPLY



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V26	7F8	‡ 0V ■-.6VDC	6.3VAC	‡185VDC ■195VDC	‡5.3VDC ■4.7VDC	0V	‡95VDC ■135VDC	0V	‡■-2.5VDC ■1-1.8VDC	
V27	6BA6	-.4VDC	0V	0V	6.3VAC	245VDC	125VDC	1.2VDC		
V28	6BA6	-.6VDC	0V	0V	6.3VAC	‡200VDC ■210VDC	125VDC	1.2VDC		
V29	6T8	-.4VDC	-1VDC	-.4VDC	6.3VAC	0V	-.3VDC	0V	-.8VDC	-.8VDC

‡ TAKEN WITH VACUUM TUBE VOLTMETER

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V26	7F8	† 0Ω ■3.6Meg	.2Ω	†27KΩ	2.2KΩ	†1.8Ω ■2.1Ω	†27KΩ	0Ω	27KΩ	
V27	6BA8	† 760KΩ ■2.7Meg	0Ω	0Ω	.1Ω	†510Ω	†27KΩ	68Ω		
V28	6BA8	†660KΩ ■2.7Meg	0Ω	0Ω	.1Ω	†4.7KΩ	†37KΩ	68Ω		
V29	6T8	Inf.	33KΩ	Inf.	.2Ω	0Ω	†660KΩ ■2.7Meg	0Ω	†100KΩ ■270KΩ	†100KΩ ■270KΩ

† MEASURED FROM PIN 8 OF V34

FUNCTION SWITCH IN AM OR FM POSITION
† TAKEN IN FM POSITION
■ TAKEN IN AM POSITION

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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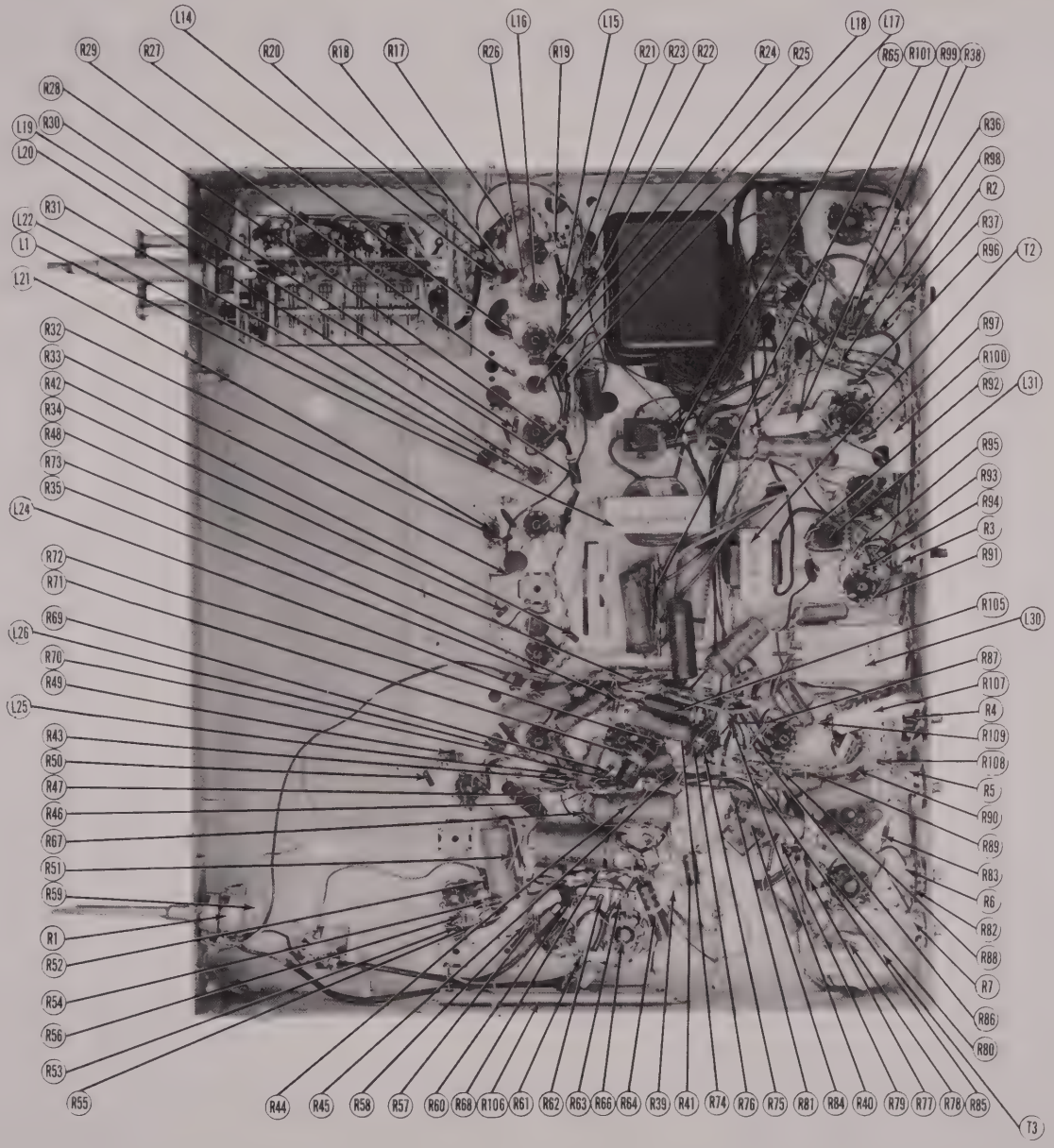
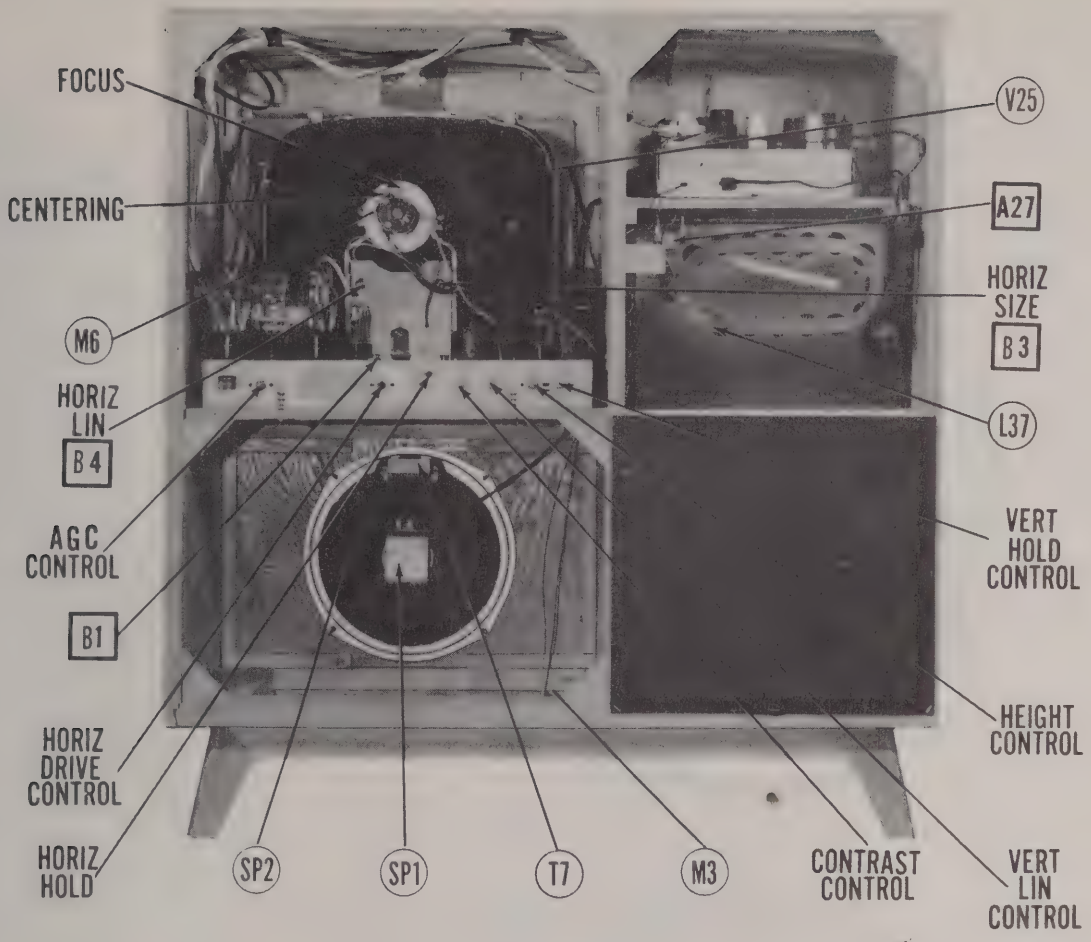
SYLVANIA
MODELS 5150M, 7110XFA, 7120MFA, 7130MFA, 7140MA, WA, 7150M, 7160M

RADIO SCHEMATIC

SYLVANIA
MODELS 5150M, 7110XFA, 7120MFA, 7130MFA, 7140MA, WA, 7150M, 7160M



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

CHECK OF HORIZONTAL OSCILLATOR

Turn the set on and tune in a TV station, preferably a test pattern, and synchronize the picture with the horizontal hold adjustment.
Check to see that the horizontal drive control is turned clockwise as far as possible without crowding in the center of the picture.
Tune to an unused channel and back again. The picture should immediately fall into synchronization.
Switch the receiver off for about 5 minutes. When the set is turned on, the picture should fall into synchronization.
Increase the brightness, and decrease the contrast and width, until the normally blanked edges of the raster are visible. There should be approximately 1/8 inch of blanking on the right side of the raster.
If the receiver passes the above checks, no horizontal oscillator alignment is needed.

HORIZONTAL OSCILLATOR ALIGNMENT

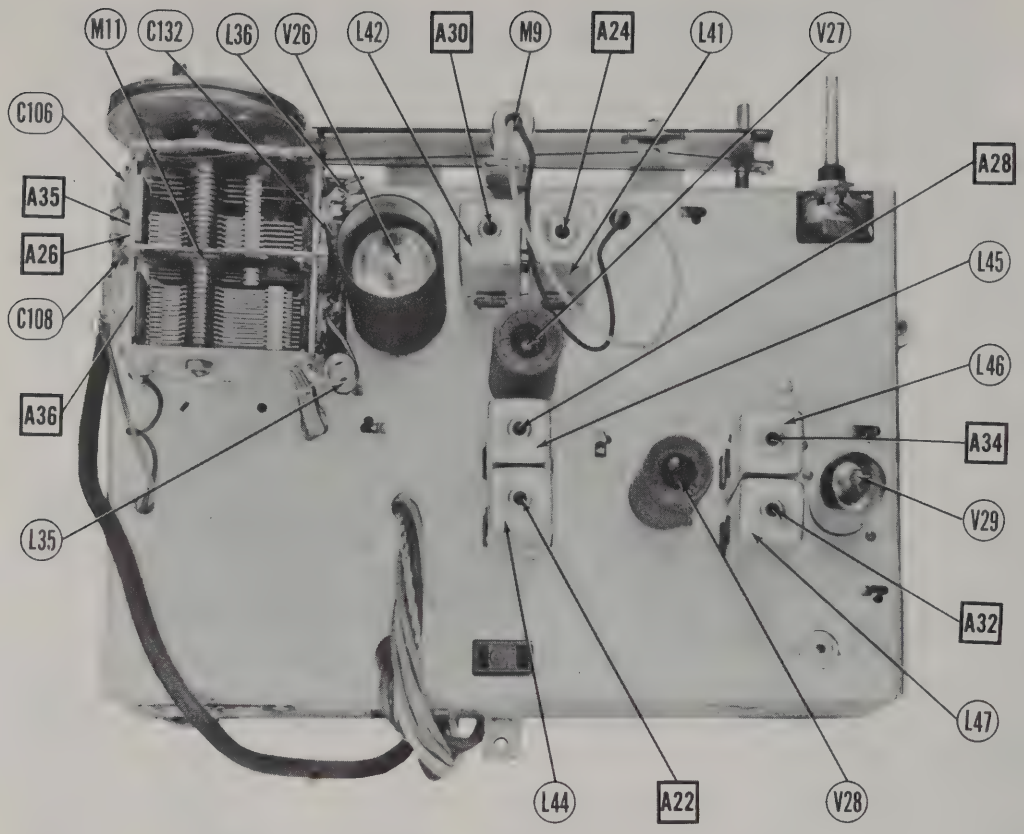
Turn the core of the "ringing" coil fully out (counter-clockwise).
Short the horizontal peaking resistor (R95).
Turn the horizontal drive control to maximum counter-clockwise and then slowly clockwise until crowding is noticed in the picture.
Then turn the control counter-clockwise just sufficiently to remove the crowding. If crowding of the picture cannot be obtained, leave the control at maximum clockwise.
Remove the horizontal discriminator tube (V16) from its socket.
Carefully turn the horizontal hold adjustment until the picture moves slowly back and forth with the blanking bar vertical.
Replace V16 in its socket.
Increase the brightness, and decrease the contrast and size, until the normally blanked edges of the raster are visible.
Adjust the horizontal phasing slug (B2) until 1/8 inch blanking is visible on the right side of the raster.
Remove the short from R95 and readjust the horizontal drive control as outlined above.
Adjust the "ringing" coil slug (B1) until 1/8 inch of blanking again appears on the right edge of the raster.

HORIZONTAL WIDTH AND LINEARITY ADJUSTMENT

Adjust the horizontal size slug (B3) until the picture is of proper width.
Adjust the horizontal linearity slug (B4) until the picture is symmetrical from left to right.
Slight retouch of the horizontal drive control may be required for optimum results.

AGC ADJUSTMENT

Turn the set on and tune in an unused channel.
Turn the contrast control to the mid-position of its range.
Connect a VTVM between pin 6 of V9 and chassis.
Adjust the AGC control until the VTVM reads negative .1 volt.
Turn the contrast control to 7/8 maximum and tune in the strongest available station.
Check the reading on the VTVM, if the reading is less than 2 volts negative, the AGC control is properly set.
If the AGC voltage is more than 2 volts, slowly turn the AGC control counter-clockwise and observe the picture. The picture will get darker and eventually lose synchronization as evidenced by a sudden shift or jittering.
Back off the control until the picture becomes stable and then slightly farther.



DISASSEMBLY INSTRUCTIONS

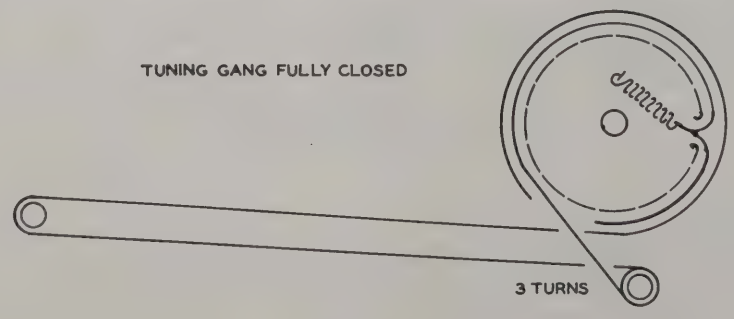
TELEVISION CHASSIS REMOVAL:

1. Remove five push-on type control knobs.
2. Remove seven wood screws securing rear cover to cabinet. Remove rear cover.
3. Disconnect built-in antenna.
4. Disconnect two radio power plugs.
5. Disconnect speaker.
6. Disconnect cabinet locator lamp.
7. Remove seven 9/32" hex head bolts securing chassis to cabinet. Remove chassis.
8. Remove four 11/32" hex nuts from speaker. Remove speaker.

NOTE: FOR PICTURE TUBE REMOVAL IT IS NECESSARY TO REMOVE THE CHASSIS AS OUTLINED ABOVE.

RADIO CHASSIS REMOVAL:

1. Remove four push-on type control knobs.
2. Disconnect built-in antenna.
3. Remove four wood screws holding antenna to cabinet. Remove antenna.
4. Disconnect phono jack.
5. Remove three metal screws securing chassis to cabinet. Remove chassis.



DIAL CORD STRINGING

RADIO PARTS LIST AND DESCRIPTIONS (Continued)

COILS RF-IF (CONT.)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA SYLVANIA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C116	.02	400	162-0612	P488-02	DF-203	PTE4S2		4TM-S2	1st IF Plate Dec.
C117	.005	400	162-0425	P688-005	D6-502	PTE6D5	811-005	6TM-D5	1st IF Screen
C118	.02	200	162-0612	P488-02	DF-203	PTE4S2		2TM-S2	1st IF Cathode
C119	.02	200	162-0612	P488-02	DF-203	PTE4S2		2TM-S2	AVC Filter
C120	.047	400	162-0415	P488-047	DF-503	PTE4S5		4TM-S47	RF Bypass
C121	.047	400	162-0415	P488-047	DF-503	PTE4S5		4TM-S47	2nd IF Plate Dec.
C122	10000		168-0002D	BPD-01	DD-103	PTE4S1	821-01	36C1	2nd IF Screen
C123	10000		168-0002D	BPD-01	DD-103	PTE4S1	821-01	36C1	2nd IF Fil.
C124	250	500	163-0250	1468-00025	D6-251	5W5T25	GP2K-250	1FM-325	Diode Load Cap
C125	680	500	163-0680	S1680	D6-681	1W5T7	GP2K-680	MS-37	De-emphasis
C126	50	500	163-0050	1468-00005	D6-500	5W5Q5	GP1K-50	1FM-45	Diode RF Filter
C127	.01	400	162-0411M	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Audio Coupling
C128	150	500	163-0150	1468-00015	D6-151	5W5T15	GP2K-150	1FM-315	Tone Comp.
C129	.01	400	162-0411M	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Tone Comp.
C130	.003	600	162-0623	P688-003	D6-302	PTE6D3	GP2M-003	6TM-D3	Tone Comp.
C131	500	500	163-0500	1468-0005	D6-501	5W5T5	GP2K-500	1FM-35	Fixed Trimmer
C132	3		166-0003P	SI3NPO	TCZ-3		NPOK-3		Osc. Coupling

* Items C112 and R115 are combined into one unit.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA SYLVANIA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R112A	1Meg	½	153-0013	Q18-137X	AK-111		Volume Control - Tapped @ 100KΩ
B	Shaft		Not req.	NQ	RS-3/16		Attach to R113A Per Instructions
R113A	1Meg	½	152-0010	Q13-137	AG-63-Z		Tone Control
B	Shaft		Not req.	NQ	RS-3/16		Attach to R114A Per Instructions
C	Switch		Not req.	76-1	SWB		Attach to R114A Per Instructions

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA SYLVANIA PART No.	IRC PART No.	IDENTIFICATION CODES
R114	1Meg	½	181-0105		Mixer Grid
R115	2200Ω	½	190-0008 *	BTS-2200	Mixer Cathode
R116	27KΩ	½	181-0273		Mixer Plate Decoupling
R117	12Ω	½	181-0120		Parasitic Suppressor
R118	27KΩ	½	181-0273		Osc. Grid
R119	27KΩ	1	182-0273		FM Osc. Plate
R120	27KΩ	½	181-0273		AM Osc. Plate
R121	100KΩ	½	181-0104	BTS-100K	AVC Network
R122	68Ω	½	181-0680		1st IF Amp. Cathode
R123	27KΩ	1	182-0273		1st IF Amp. Screen
R124	470Ω	½	181-0471	BTS-470	1st IF Amp. Decoupling
R125	68Ω	½	181-0680		2nd IF Amp. Cathode
R126	27KΩ	1	182-0273		2nd IF Amp. Screen
R127	4700Ω 5%	1	182-0472	BTA-4700-5%	2nd IF Amp. Decoupling
R128	27KΩ	½	181-0273		2nd AM IF Transformer Shunt
R129	33KΩ	½	181-0333	BTS-33K	Ratio Det. Diode Load
R130	100KΩ	½	181-0104	BTS-100K	De-emphasis
R131	4700Ω	½	181-0472	BTS-4700	AVC Network
R132	2.2 Meg	½	181-0225	BTS-2.2Meg	AVC Network
R133	47KΩ	½	181-0473	BTS-47K	AVC Network
R134	100KΩ	½	181-0104	BTS-100K	AVC Network
R135	270KΩ	½	181-0274	BTS-270K	AVC Network
R136	47KΩ	½	181-0473	BTS-47K	Tone Compensation
R137	100Ω	½	181-0101	BTS-100	Bias Network
R138A	120Ω	10	185-0002		Bias Network - Wire Wound
B	160Ω				Bias Network - Wire Wound

* Items R115 and C112 are combined into one unit.

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA SYLVANIA PART No.	MEISSNER PART No.	IRC PART No.	NOTES
L34	FM Ant. Choke	.1Ω		146-0007			
L35	FM Ant. Choke	0Ω		111-0009			
L36	FM Osc. Coil	0Ω		113-0019			
L37	Loop Antenna	2.2Ω		582-0006			
L38	Cathode Choke	1.8Ω		146-0009		CLA	2.2 Microhenries
L39	AM Osc. Coil	2.4Ω		113-0011	14-1073		Tap at .3Ω
L40	Fil. Choke	.1Ω		146-0007			
L41	1st AM IF	8.5Ω	18Ω	121-0010	16-6678		
L42	1st FM IF	1Ω	.8Ω	121-0011			
L43	RF Choke	.3Ω		146-0008			
L44	2nd AM IF	12.5Ω	12.5Ω	122-0010	16-6678		
L45	2nd FM IF	1.3Ω	.6Ω	122-0011			
L46	3rd AM IF Ratio Det. Trans. Pri.	1.7Ω	8Ω	119-0001			
L47	Ratio Det. Trans. Sec.	1.5Ω	1.5Ω	128-0003			
L48	Fil. Choke	.1Ω		146-0007			
L49	AC Line Choke	.1Ω		146-0007			
L50	AC Line Choke	.1Ω		146-0007			

PHONO CARTRIDGE and NEEDLE

ITEM No.	SYLVANIA PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	SHURE PART No. CARTRIDGE	SHURE PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE	REMARKS
M8		AC-AG-J	A-AG	W26B	A66U	33	0-2 Or S-2	

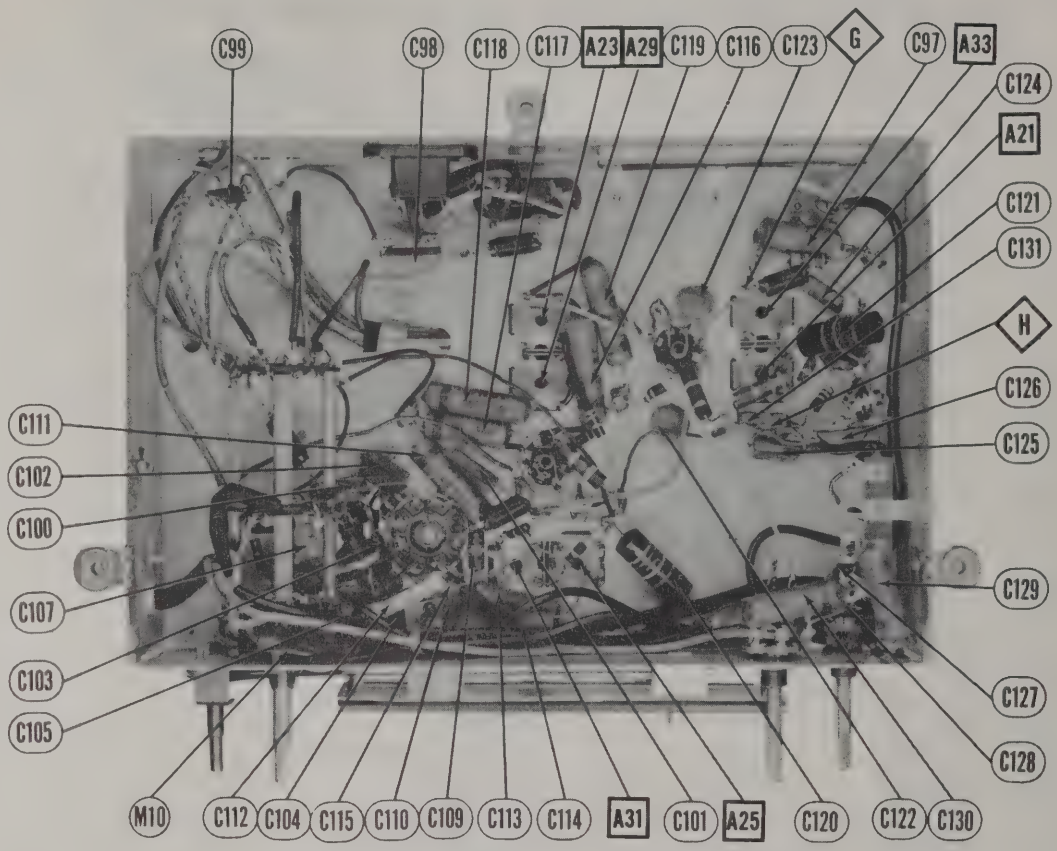
ASTATIC, SHURE AND ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED.

DIAL LIGHTS

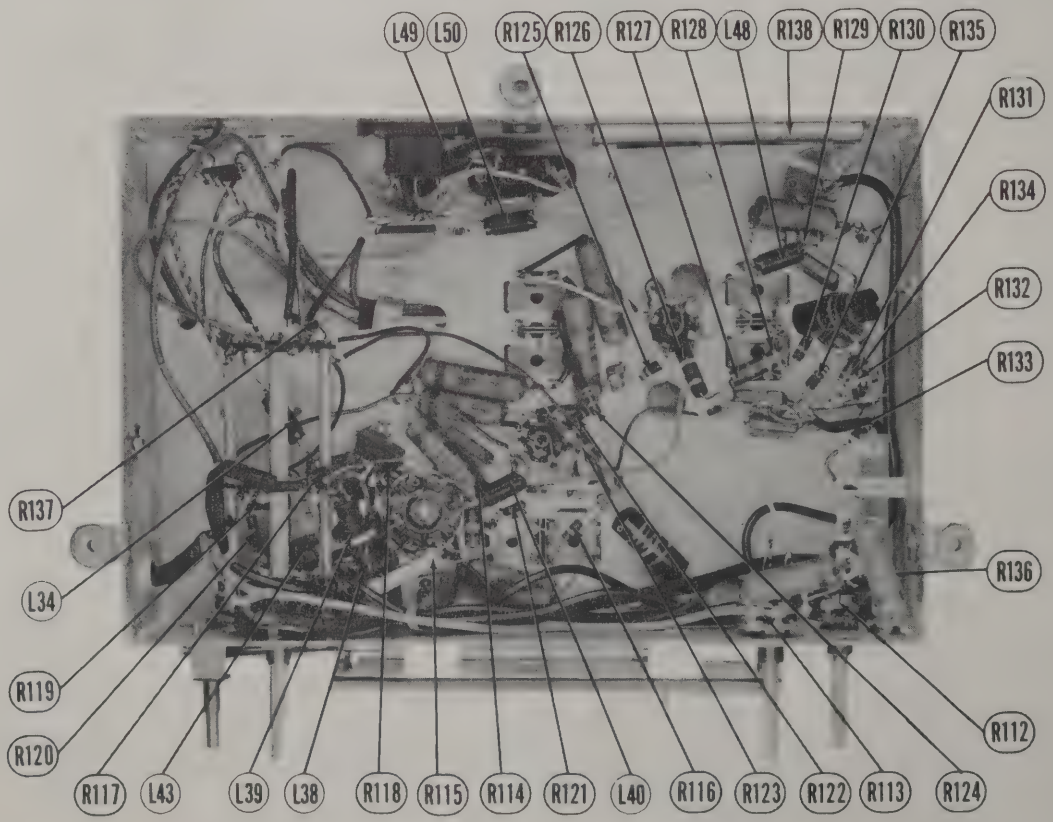
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA SYLVANIA PART No.		NOTES
M9	Bayonet	6-8	.15	Brown	611-0047		Type # 47

MISCELLANEOUS

ITEM No.	PART NAME	SYLVANIA PART No.	NOTES
M10	Switch	573-0003	Function, FM-AM-Phono-TV (Models 7160B, 7150M, 5150M)
M11	Tuning Capacitor	170-0005	14-519MMF, 17-201MMF (Model 7160B, 7151M, 5150M)
	Pointer	792-0005	Includes Slide Assembly
	Escutcheon	713-0001	Includes Dial



RADIO CHASSIS-BOTTOM VIEW-CAPACITOR IDENTIFICATION



RADIO CHASSIS-BOTTOM VIEW-RESISTOR IDENTIFICATION

TV PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		SYLVANIA PART No.	STANDARD REPLACEMENT		
V1	RF Amplifier	6CB6	6CB6	6CK	
V2	Converter	6J6	6J6	7BF	
V3	1st Video IF Amp.	6AU6	6AU6	7BK	
V4	2nd. Video IF Amp.	6BA6	6BA6	7BK	
V5	3rd Video IF Amp.	6BA6	6BA6	7BK	
V6	4th Video IF Amp.	6BC5	6BC5	7BD	
V7	Video Detector - AGC Clamp	6AL5	6AL5	6BT	
V8	Video Amplifier	6BF5	6BF5	7BZ	
V9A	AGC Amplifier - Sync. Amplifier	12AU7	12AU7	9A	
B	AGC Amplifier - Sync. Amplifier	6SN7GT	6SN7GT	8BD	
V10	Sound IF Amplifier	6AU6	6AU6	7BK	
V11	Limiter	6AU6	6AU6	7BK	
V12	Ratio Detector - AF Amplifier	6T8	6T8	9E	
V13A	Audio Output	6L6G	6L6G	7AC	
B	Audio Output	6V6GT	6V6GT	7S	
V14	Sync. Separator - AGC Rectifier	12AX7	12AX7	9A	
V15	Vert. Oscillator - Vert. Amplifier	6BL7GT	6BL7GT	8BD	
V16	Horiz. Phase Discriminator	6AL5	6AL5	6BT	
V17	Horiz. AFC	6AU6	6AU6	7BK	
V18A	Horiz. Oscillator - Horiz. Discharge	12AU7	12AU7	9A	
B	Horiz. Oscillator - Horiz. Discharge	6SN7GT	6SN7GT	8BD	
V19A	Horiz. Output	6CD6G	6CD6G	5BT	
B	Horiz. Output	6BQ6GT	6BQ6GT	6AM	
V20	Damper	6W4GT	6W4GT	4CG	
V21	H.V. Rectifier	5642	5642	5642	
V22	H.V. Rectifier	5642	5642	5642	
V23	L.V. Rectifier	5U4G	5U4G	5T	
V24	L.V. Rectifier	5U4G	5U4G	5T	
V25A	Picture Tube	17BP4A	17BP4A	12D	
B	Picture Tube	19AP4A	19AP4A	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	SYLVANIA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	40	350	161-2003	AFH1284H		UPT8445		TVL-2675	▲ Filter
B	80	350							▲ Filter
C2A	10	450	161-4004	AFH2J812H5A		UPT424		TVL-4707	▲ Hor. Output Cathode *
B	40	350							■ Filter
C	60	350							▲ Filter
D	25	25							Output Cathode
C3A	10	450	161-4003	AFH1222J4P		UPT411		TVL-4705	▲ Decoupling
B	10	450		PRS50/100					■ Decoupling
C	100	50							▲ Vert. Output Cath.
D	60	200							Filter
C4	10	25	161-1000	PRS50/10		BBR10-25		TVA-1204	AGC Filter
C5	2	50	161-1001	PRS150/4		BBR2-50		TVA-1301	Stabilizing Cap
C6	10	350	161-1007	PRS350/12		BR1235A		TVA-1604	Decoupling †
C7	29						N080-338-29		Fixed Padder
C8	100			SI100	D6-101		GP1K-100	19C11	RF Coupling
C9	1000			BPD-001	DD-102		801-001	19C1	AGC Filter
C10	1000			BPD-001	DD-102		801-001	19C1	RF Bypass
C11	1000			BPD-001	DD-102		801-001	19C1	RF Amp. Screen
C12	1000			BPD-001	DD-102		801-001	19C1	RF Amp. Fil.
C13	100			SI100	D6-101		GP1K-100	19C11	RF Coupling
C14	.68				TCZ-.68				RF Coupling
C15	14.5						NPOK-14.5		Fixed Padder
C16	16.5						NPOK-16.5		Fixed Padder
C17	100			SI100	D6-101		GP1K-100	19C11	RF Coupling
C18	3.3			SI3.3NPO	TCZ-3.3		NPOK-3.3		Osc. Coupling
C19	25			SI27N080			N080-338-25		Osc. Grid Cap †
C20	12.5						N470K-12.5		Fixed Trimmer
C21	10			SI10N750	TCN-10		N750K-10	19C4	Fixed Trimmer
C22	1000			BPD-001	DD-102		801-001	19C1	Filament Bypass
C23	100			SI100	D6-101		GP1K-100	19C11	IF Coupling
C24	5000		166-5000D	BPD-005	DD-502	1D5D5	811-005	29C1	1st V. IF Dec.
C25	5000		166-5000D	BPD-005	DD-502	1D5D5	811-005	29C1	1st V. IF Cathode
C26	1000		166-1000D	BPD-001	DD-102	1W5D1	801-001	19C1	1st V. IF Fil.
C27	50		168-0009N	SI50NPO	TCZ-50		NPOM-50	29C14	Fixed Trimmer †
C28	5000		166-5000D	BPD-005	DD-502	1D5D5	811-005	29C1	AGC Filter
C29	5000		166-5000D	BPD-005	DD-502	1D5D5	811-005	29C1	RF Bypass
C30	5000		166-5000D	BPD-005	DD-502	1D5D5	811-005	29C1	AGC Filter
C31	5000		166-5000D	BPD-005	DD-502	1D5D5	811-005	29C1	2nd V. IF Dec.
C32	1000		166-1000D	BPD-001	DD-102	1W5D1	801-001	19C1	2nd V. IF Fil.
C33	5000		166-5000D	BPD-005	DD-502	1D5D5	811-005	29C1	AGC Filter
C34	5000		166-5000D	BPD-005	DD-502	1D5D5	811-005	29C1	3rd V. IF Dec.
C35	1000		166-1000D	BPD-001	DD-102	1W5D1	801-001	19C1	3rd V. IF Fil.
C36	.68		168-0004P		TCZ-.68				IF Coupling
C37	4.7		168-0008N	SI4.7NPO	TCZ-4.7		NPOK-4.7		Fixed Trimmer
C38	5000		166-5000D	BPD-005	DD-502	1D5D5	811-005	29C1	4th V. IF Dec.
C39	5000		166-5000D	BPD-005	DD-502	1D5D5	811-005	29C1	4th V. IF Cathode
C40	1000		166-1000D	BPD-001	DD-102	1W5D1	801-001	19C1	4th V. IF Fil.
C41	50		168-0009N	SI50NPO	TCZ-50	5R5Q5	NPOM-50	29C14	Fixed Trimmer
C42	5000		166-5000D	BPD-005	DD-50	1D5D5	801-005	29C1	RF Bypass
C43	5000		166-5000D	BPD-005	DD-50	1D5D5	801-005	29C1	AGC Filter
C44	4.7		168-0008N	SI4.7NPO	TCZ-4.7	5W5V5	NPOK-4.7	MS-55	V. Diode Filter
C45	.05	200	162-0615	P288-05	DF-503	PTE4S5		2TM-S5	RF Bypass §
C46	.1	200	162-0401	P288-1	DF-104	PTE4P1		2TM-P1	V. Amp. Screen §
C47	.2	200	162-0202	P488-22		GT4P2		2TM-P22	Video Coupling
C48	10000		168-0002N	SI10000	D6-103	PTE4S1	821-01	36C1	Pic. Tube Grid
C49	4.7		168-0008N	SI4.7NPO	TCZ-4.7		NPOK-4.7		S. IF Coupling

TV PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (CONT.)

ITEM No.	RATING CAP.	RATING VOLT	SYLVANIA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C50	4.7		168-0008N	S14.7NPO	TCZ-4.7		NPOK-4.7		Voltage Divider
C51	10		168-0010P	S10NPO	TCZ-10		NPOK 10		Fixed Trimmer
C52A	4000		168-0003D	BPD-2X004	DD-2-502	1D5D4	822-2X004	36C2	S. IF Cathode
B	4000					1D5D4			S. IF Dec.
C53	50		166-0050N	S150	D6-500	5W5Q5	GP1K-50	19C28	Limiter Grid Filter
C54	.2	400	162-0402	P488-22		GT4P2		4TM-P22	Limiter Plate Dec. †
C55	5000		166-5000D	S5D1	ED-502	1D5D5	811-005	29C1	Limiter Screen
C56	250		166-0250P	S250	D6-251	5W5T25	GP2K-250	19C12	Diode Load Cap
C57	680	500	167-0681	S1680	D6-681	1W5T7	GP2K-680	19C17	De-emphasis
C58	10000		168-0010N	S110000	D6-103	PTE6S1	821-01	36C1	Audio Coupling
C59	5000		166-5000D	BPD-5002	DD-502	1D5D5	811-005	29C1	RF Bypass
C60	5000		166-5000D	BPD-005	DD-502	1D5D5	811-005	29C1	RF Bypass †
C61	10000		190-0006	S110000	D6-103	PTE6S1	821-01	36C1	Tone Comp. #
C62	10000		168-0002N	S110000	D6-103	PTE6S1	821-01	36C1	Audio Coupling
C63	100	500	163-0100	S1100	D6-101	5W5T1	GP1K-100	1FM-31	AF Amp. Plate
C64A	4000		168-0003D	BPD-2X004	DD-2-502	1D5D4	822-2X004	36C2	Det. AF Amp. Fil.
B	4000					1D5D4			Det. AF Amp. Fil.
C65	10000		168-0010N	S110000	D6-103	PTE6S1	821-01	36C1	Audio Coupling
C66	.005	600	162-0025	P488-025	D6-502	PTE6D5	811-005	6TM-D5	Output Plate
C67	.047	200	160-02147	P288-047	DF-503	PTE4S5		2TM-S47	Sync. Coupling
C68	.003	600	162-0301	P488-301	D6-302	PTE6D3	GP2M-003	6TM-D3	AGC Rect. Cathode
C69	.005	400	162-0502	P488-005	D6-502	PTE6D5	811-005	6TM-D5	Sync. Coupling
C70	.01	600	168-0002N	P688-01	D6-103	PTE6S1	821-01	6TM-S1	Sync. Coupling
C71A	2000		168-0002N	P688-002	a	PTE6S1	GP2M-002	6TM-D2	Integrator Net
B	5000			P688-005	PC-100	PTE6D5	811-005	6TM-D5	Integrator Net
C	5000			P688-005		PTE6D5	811-005	6TM-D5	Integrator Net
C72	750	500	163-0750	1468-00075	D6-751	1W5T8	GP2K-750	1FM-375	Vert. Osc. Grid
C73	.003	600	162-0301	P688-003	D6-302	PTE6D3	GP2M-003	6TM-D3	Vert. Osc. Grid
C74	.1	400	162-0401	P488-1		PTE4P1		4TM-P1	Vert. Discharge
C75	.1	400	162-0401	P488-1	DF-104	PTE4P1		4TM-P1	Vert. Sweep Coupling
C76	100	500	163-0101	1468-0001	D6-101	5W5T1	GP1K-100	1FM-31	Horiz. Sync. Coupling
C77	.005	400	162-0502	P688-005	D6-502	PTE6D5	811-005	6TM-D5	Fixed Trimmer
C78	.005	500	162-0625	P688-005	D6-502	PTE6D5	811-005	6TM-D5	AFC Filter
C79	.1	200	162-0401	P288-1	DF-104	PTE4P1		2TM-P1	AFC Filter
C80	.015	400	189-0010	P488-015		PTE6S15		6TM-S15	Fixed Trimmer
C81	100	500	163-0101	1468-0001	D6-101	5W5T1	GP1K-100	1FM-31	Phase Shifter
C82	.002	600	162-0422S	P688-002	D6-202	PTE6D2	GP2M-002	6TM-D2	Horiz. Osc. Grid
C83	5000		166-5000D	BPD-005	DD-502	1D5D5	811-005	29C1	RF Bypass
C84	.01	600	162-0611	P688-01	D6-103	PTE6S1	821-01	6TM-S1	Horiz. Sweep Coupling
C85	5000		166-5000D	BPD-005	DD-502	1D5D5	811-005	29C1	Horiz. Discharge Dec.
C86	680	500	163-0680	S1680	D6-681	1W5T7	GP2K-680	MS-37	Horiz. Discharge
C87	1000		168-0010N	S11000	D6-102	1W5D1	GP2L-001	19C1	Horiz. Sweep Coupling
C88	.05	400	162-0503	P488-05	DF-503	PTE4S5		4TM-S5	Hor. Output Screen
C89	.1	600	162-0601	P688-1		PTE6P1		6TM-P1	Damper Filter
C90	.03	600	162-0613	P688-03		PTE6S3		6TM-S3	Damper Filter
C91	.22	200	160-02222	P488-22		GT2P25		2TM-P22	Horiz. Sweep Coupling
C92	.2	600	162-0602	684-25		GT6P25		6TM-P25	Decoupling
C93	1200	1000	174-1200						Fixed Trimmer
C94	.0005	10000	160-14350	P10088-0005		PTE100T5		TVM-35	Voltage Doubler Cap
C95	.0005	10000	160-14350	P10088-0005		PTE100T5		TVM-351	H.V. Filter
C96	.0005	10000	160-14350	P10088-0005		PTE100T5		TVM-351	H.V. Filter ¶

¶ Used only in chassis 1-274.
* Chassis 1-437 uses 2 MFD - 50 volt in this application and the C2A section is used in the application of C92.
† Not used in chassis 1-437.
‡ Some models use 33MMF in this application.
§ Chassis 1-437 uses .005MFD in this application.
■ Items C71A, C71B, R77A and R77C are combined into one unit.
Items C61 and R59 are combined into one unit.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	SYLVANIA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	2Meg	½	154-0002	Concentrikit			
B	1Meg			B11-139 #	RTV-260		Brightness Control - Front
C	Shaft End			B13-137Z #			Volume Control - Tapped ② 125KΩ - Rear
				E-202 #			Attach Per Instructions in "Concentrikit"
R2A	1Meg	½	153-0009	Q11-137	AG-61-S	AN-69	AGC Control
B	Shaft		Not req.	Not req.	FES-1/4	AK-1	Attach to R2A Per Instructions
R3A	250KΩ	½	153-0007	Q11-130	AG-55-S	AN-50	Horizontal Drive Control
B	Shaft		Not req.	Not req.	FES-1/4	AK-1	Attach to R3A Per Instructions
R4	250Ω	2	153-3007	WK-250	43-300	VK-123	Contrast Control - Wire Wound
R5A	5000Ω	½	153-0010	Q11-114	AM-19-S	AN-10	Vertical Linearity Control
B	Shaft		Not req.	Not Req.	FES-1/4	AK-1	Attach to R5A Per Instructions
R6A	1Meg	½	153-0001	Q11-137	AG-61-S	AN-69	Vertical Hold Control
B	Shaft		Not req.	Not req.	FES-1/4	AK-1	Attach to R6A Per Instructions
R7A	1Meg	½	153-0001	Q11-137	AG-61-S	AN-69	Height Control
B	Shaft		Not req.	Not req.	FES-1/4	AK-1	Attach to R7A Per Instructions

Additional parts to be used with "Concentrikit"

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	SYLVANIA PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ± 10% UNLESS OTHERWISE SPECIFIED
R8	1500Ω	½		BTS-1500	Antenna Loading
R9	10KΩ	½		BTS-10K	AGC Network
R10	6800Ω 20%	½			RF Amp. Screen
R11	6Ω	½			Parasitic Suppressor
R12	10KΩ	½			Mixer Grid
R13	100KΩ 20%	½			Mixer Grid
R14	10KΩ	½			Mixer Plate
R15	22KΩ 20%	½			Osc. Grid
R16	10KΩ	½			Osc. Plate
R17	3300Ω	½	181-0332	BTS-3300	1st Video IF Amp. Grid
R18	220Ω	½	181-0221	BTS-220	1st Video IF Amp. Cathode
R19	1000Ω	½	181-0102	BTS-1000	Decoupling - See Note 2
R20	33KΩ	½	181-0333		Sound Trap Shunt - See Note1
R21	3.3Meg	½	181-0335	BTS-3.3Meg	AGC Network
R22	6800Ω 20%	½	181-0682	BTS-6800	AGC Network
R23	100KΩ	½	181-0104	BTS-100K	AGC Network
R24	1000Ω 20%	½	181-0102	BTS-1000	AGC Network
R25	1000Ω 20%	½	181-0102	BTS-1000	AGC Network
R26	5600Ω	½	181-0562		2nd Video IF Transformer Shunt - See Note 3

RESISTORS (CONT.)

ITEM No.	RATING RESISTANCE	RATING WATTS	SYLVANIA PART No.	IRC PART No.	IDENTIFICATION CODES
R27	82Ω	½	181-0820	BTS-82	2nd Video IF Amp. Cathode
R28	470Ω	1	182-0471	BTA-470	Decoupling
R29	27KΩ	½	181-0273		3rd Video IF Transformer Shunt
R30	82Ω	½	181-0820	BTS-82	3rd Video IF Amp. Cathode
R31	27KΩ	½	181-0273		4th Video IF Transformer Shunt
R32	220Ω	½	181-0221	BTS-220	4th Video IF Amp. Cathode
R33	1000Ω 20%	½	181-0102	BTS-1000	4th Video IF Amp. Decoupling
R34	4700Ω	½	181-0472	BTS-4700	5th Video IF Transformer Shunt - See Note 4
R35	3300Ω 5%	½	181-03325	BTS-3300-5%	Video Det. Diode Load - See Note 5
R36	330KΩ 5%	½	181-03345	BTS-330K-5%	AGC Rectifier Cathode
R37	560KΩ 5%	½	181-05645	BTS-560K-5%	AGC Network
R38	2.2Meg	½	181-0225	BTS-2.2Meg	AGC Network
R39	3600Ω	3	189-0023		AGC Amp. Cathode - Wire Wound
R40	10KΩ	½	181-0103	BTS-10K	AGC Amp. Plate
R41	3300Ω 5%	2	183-03325	BTB-3300-5%	Voltage Divider
R42	100Ω 20%	½	181-0101	BTS-100	Bias Network
R43	33KΩ 20%	½	181-0333	BTS-33K	Video Peaking Coil Shunt - See Note 6
R44	180KΩ 5%	½	181-01845	BTS-180K-5%	Video Amp. Plate
R45	1.2Meg 5%	½	181-01255	BTS-1.2Meg-5%	Video Amp. Plate
R46	6800Ω	2	183-0682	BTB-6800	Voltage Divider - See Note 7
R47	5600Ω	2	183-0562	BTB-5600	Voltage Divider - See Note 8
R48	470KΩ 20%	½	181-0474	BTS-470K	Picture Tube Grid
R49	47KΩ	½	181-0473		Sound IF Amp. Grid
R50	100Ω	½	181-0101	BTS-100	Sound IF Amp. Cathode
R51	1000Ω	½	181-0102	BTS-1000	Sound IF Amp. Decoupling
R52	47KΩ	½	181-0473	BTS-47K	Limiter Grid
R53	120Ω	½	181-0121	BTS-120	Limiter Cathode - See Note 9
R54	10KΩ	½	182-0103	BTA-10K	Limiter Screen - See Note 1
R55	33KΩ	½	181-0333	BTS-33K	Limiter Plate Decoupling - See Note 18
R56	33KΩ	½	181-0333	BTS-33K	Voltage Divider - See Note 1
R57	100KΩ	½	181-0104	BTS-100K	De-emphasis
R58	68KΩ	½	181-0683	BTS-68K	Ratio Det. Diode Load
R59	49KΩ	½	190-0006 #	BTS-47K	Tone Compensation
R60	15Meg	½	181-0156	BTS-15Meg	AF Amp. Grid
R61	470KΩ	½	181-0474	BTS-470K	AF Amp. Plate - See Note 10
R62	1000Ω	½	181-0102		Parasitic Suppressor - See Note 1
R63	470KΩ	½	181-0474	BTS-470K	Output Grid
R64	150Ω	2	183-0151	BW-2-150	Output Cathode - See Note 11
R65	220Ω	2	183-0221	BW-2-220	Output Decoupling - See Note 12
R66	47Ω	½	181-0470		Parasitic Suppressor
R67	1500Ω	½	181-0152	BTS-1500	Decoupling - See Note 1
R68	470Ω	½	181-0471	BTS-470	Bias Network
R69	10KΩ 20%	½	181-0103	BTS-10K	Isolation
R70	10KΩ 20%	½	181-0103	BTS-10K	Isolation
R71	33KΩ	½	181-0333	BTS-33K	Sync. Sep. Plate
R72	2.2Meg	½	181-0225	BTS-2.2Meg	Sync. Sep. Grid - See Note 13
R73	12KΩ	½	181-0123	BTS-12K	Sync. Sep. Plate
R74	1.2Meg 20%	½	181-0125	BTS-1.2Meg	Sync. Amp. Grid
R75	33KΩ	2	183-0333	BTB-33K	Sync. Amp. Plate
R76	15KΩ	2	183-0153	BTB-15K	Sync. Amp. Plate
R77A	22KΩ	½	190-0007 *	BTS-22K	Integrator
B	8200Ω	½		BTS-8200	Integrator
C	8200Ω	½		BTS-8200	Integrator
R78	1.2Meg 5%	½	181-01255	BTS-1.2Meg-5%	Vert. Osc. Grid - See Notes 13 and 14
R79	470KΩ	½	181-0474	BTS-470K	Vertical Osc. Plate
R80	47KΩ 20%	½	181-0473	BTS-47K	Vertical Osc. Transformer Shunt
R81	47005 5%	½	181-04725	BTS-4700-5%	Vertical Peaking
R82	1Meg 20%	½	181-0105	BTS-1Meg	Vertical Output Grid
R83	68KΩ 20%	½	181-0681	BTS-680	Vertical Output Cathode
R84	100KΩ	½	181-0104	BTS-100K	Decoupling
R85	100KΩ	½	181-0104	BTS-100K	Horizontal Disc. Diode Load
R86	100KΩ	½	181-0104	BTS-100K	Horizontal Disc. Diode Load
R87	1Meg 20%	½	181-0105	BTS-1Meg	Horizontal Disc. Diode Load
R88	470KΩ 20%	½	181-0474	BTS-470K	Horizontal AFC Filter
R89	8200Ω	½	181-0822	BTS-8200	Horizontal AFC Filter
R90	1000Ω 20%	½	181-0102		Parasitic Suppressor
R91	470KΩ 20%	½	181-0474	BTS-470K	Horizontal Osc. Grid
R92	22KΩ	½	181-0223	BTS-22K	Horizontal Osc. Coil Shunt
R93	150KΩ 20%	½	181-0154	BTS-150K	Horizontal Discharge Grid
R94	82KΩ	½	181-0823	BTS-82K	Horizontal Discharge Plate
R95	4700Ω	½	181-0472	BTS-4700	Horizontal Peaking
R96	100Ω 20%	½	181-0101		Parasitic Suppressor
R97	100Ω 20%	½	181-0101		Parasitic Suppressor
R98	470KΩ 20%	½	181-0474	BTS-470K	Horizontal Output Grid
R99	150Ω	3	189-0020		Horizontal Output Cathode - Wire Wound
R100	6800Ω	3	187-0004		Voltage Divider - Wire Wound - See Note 7
R101	1000Ω 20%	1	182-0102	BTA-1000	Horizontal Linearity Coil Shunt
R102	1000Ω 20%	½	181-0101	BTS-1000	Voltage Divider
R103	1.5Meg	2	189-0019		H.V. Rectifier Load
R104	1.5Meg	2	189-0019		H.V. Rectifier Load
R105	4700Ω 20%	2	183-0472	BTB-4700	Filter - See Note 15
R106A	3000Ω	10	185-0001		Voltage Divider - Wire Wound
B	1185Ω	15			Voltage Divider - Wire Wound - See Note 17
R107	270Ω	5	187-0003		Voltage Divider - Wire Wound - See Note 16
R108	47Ω	½	181-0470	BW-½-47	Voltage Divider
R109	4.3Ω	½	189-0007	BW-½-4.3	Horizontal Phase Det. Filament - Wire Wound
R110	2700Ω	½	181-0272	BTS-2700	Sound Trap Shunt - See Note 1
R111	220KΩ	½	181-0224	BTS-220K	Isolation - See Note 1

Items R59 and C61 are combined into one unit.
* Items R77A, R77B, R77C, C71A, C71B and C71C are combined into one unit.

Note 1. Not used in all models
Note 2. Some models use 820Ω resistor in this application.
Note 3. Some models use 4700Ω resistor in this application.
Note 4. Some models use 5600Ω resistor in this application.
Note 5. Some models use 3900Ω resistor in this application.
Note 6. Some models use 15KΩ resistor in this application.
Note 7. Some models use 8200Ω resistor in this application.
Note 8. Some models use 7500Ω resistor in this application.
Note 9. Some models use 330Ω resistor in this application.
Note 10. Some models use 220KΩ resistor in this application.
Note 11. Some models use 270Ω resistor in this application.
Note 12. Some models use 470Ω resistor in this application.
Note 13. Some models use 1meg resistor in this application.
Note 14. Some models use 1.5meg resistor in this application.
Note 15. Some models use 1000Ω resistor in this application.
Note 16. Some models use 180Ω resistor in this application.
Note 17. Some models use 1275Ω resistor in this application.
Note 18. Some models use 22KΩ resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA SYLVANIA PART No.	REPLACEMENT DATA STANCOR PART No.	REPLACEMENT DATA MERIT PART No.	REPLACEMENT DATA CHICAGO PART No.
T1A	117VAC	540VCT	5VAC	6.3VAC @ 2.8A SEC. 4 6.3VAC @ 4.7A	141-0016			
	@ 2.5A	.400ADC	@ 6A					
B	117VAC	520VCT	5VAC	6.3VAC @ 4.2A SEC. 4 6.3VAC @ 6A	141-0013 ⑥		P-3061	
	@ 2.1A	.300ADC	@ 3A					

⑥ Used in Model 7140MA

TRANSFORMER (FILAMENT)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA SYLVANIA PART No.	REPLACEMENT DATA STANCOR PART No.	REPLACEMENT DATA MERIT PART No.	REPLACEMENT DATA CHICAGO PART No.
T2	6.3VAC @ 1.6A	6.3VAC @ 1.2A			240-0001		P-2945	F0-615

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING DC RESISTANCE PRI.	RATING DC RESISTANCE SEC.	REPLACEMENT DATA SYLVANIA PART No.	REPLACEMENT DATA STANCOR PART No.	REPLACEMENT DATA MERIT PART No.	REPLACEMENT DATA CHICAGO PART No.	NOTES
T3	170Ω	575Ω	242-0001	A-8111	A-3000	TB0-1	Vertical Block Osc. Trans.
T4	126Ω	41Ω	241-0001				Horizontal Output Trans.
	Tap 32Ω	Tap 20Ω SEC. 2 0Ω					
		SEC. 3 0Ω					
T5	870Ω		241-0004	A-8123	A-3037	TS0-5 ⑦	
	Tap 8.5Ω						
T6A	19Ω		100-0003	DY-7	MD-70		Horizontal Deflection Coil
B	50Ω						Vertical Deflection Coil

⑦ Drill one new mounting hole.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA SYLVANIA PART No.	REPLACEMENT DATA STANCOR PART No.	REPLACEMENT DATA MERIT PART No.	REPLACEMENT DATA CHICAGO PART No.	INSTALLATION NOTES
T7A	3.7KΩ	4.4Ω	270Ω	.6Ω	143-0017	A-3825	A-2930 ⑦	R0-9 ⑦	⑦ Drill one new mounting hole.
B	4.8KΩ	4.1Ω	530Ω	.7Ω	143-0014 ⑧	A-3849 ⑦	A-3019	R0-9 ⑦	⑧ Used in model 7140MA

SPEAKER

ITEM No.	RATINGS FIELD RES.	RATINGS V. C. IMP.	REPLACEMENT DATA SYLVANIA PART No.	REPLACEMENT DATA VIKING PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1A	PM	4.4Ω	539-1202 ②	12J12	12A4A	② Speaker with output trans. attached used in Models 7150M, 7160B, 7140MA, 5150M
B	PM	4.4Ω	539-1203 ③	12J12	12A4A	③ Used in Model 7140WA
C	PM	4.4Ω	539-0600 ④			④ Used in Models 7110XFA, 7120MFA
D	PM	4.4Ω	539-1002 ⑤			⑤ Used in Model 7130MFA
	CONE DIA.	V. C. DIA.				
SP2A	11 3/8"	1"				
B	11 3/8"	1"				
C	6 1/4"	9/16"				
D	9 7/8"	1"				

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D.C. RESISTANCE	RATINGS INDUCTANCE (0 CURRENT 1000 v)	REPLACEMENT DATA SYLVANIA PART No.	REPLACEMENT DATA STANCOR PART No.	REPLACEMENT DATA MERIT PART No.	REPLACEMENT DATA CHICAGO PART No.	INSTALLATION NOTES
L1	.300A	41Ω	1.2Henries	145-0004	C-2326 ①	C-2996	TR-3300①	① Drill one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA SYLVANIA PART No.	REPLACEMENT DATA MEISSNER PART No.	NOTES
L2	Ant. Trans.	.1Ω	0Ω			L2 Thru L13 Part of Tuner Part #323-0002
L3	Ant. Coil	0Ω				
L4	RF Choke	.1Ω				
L5	RF Coil	0Ω				
L6	RF Coil	0Ω				
L7	RF Coil	0Ω				
L8	RF Coil	0Ω				
L9	Band Pass Coil	0Ω				
L10	Osc. Coil	0Ω				
L11	Osc. Coil	0Ω				
L12	Fil. Choke	0Ω				
L13	1st Video IF	1.1Ω				
L14A	Sound Trap	.1Ω	0Ω	118-0005		Used in Chassis 1-357, 1-274
B	Sound Trap					Used in Chassis 1-442, 1-437
L15	Fil. Choke	0Ω		147-0014		
L16	2nd Video IF	.7Ω	.7Ω	125-0002		
L17	Fil. Choke	0Ω		147-0014		
L18	3rd Video IF	.7Ω	.7Ω	125-0002		
L19	Fil. Choke	0Ω		147-0014		
L20	4th Video IF	.7Ω	.7Ω	125-0002		
L21	Sound Trap	.1Ω	0Ω	118-0005		
L22	Adj. Channel Sound Trap	.3Ω		118-0007		
L23	5th Video IF	.5Ω	1.1Ω	120-0002		

TV PARTS LIST AND DESCRIPTIONS (Continued)

COILS RF-IF (CONT.)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA SYLVANIA PART No.	REPLACEMENT DATA MEISSNER PART No.	NOTES
L24A	Peaking	6.4Ω		131-2006		Used in Chassis 1-357, 1-274
B	Peaking	9.5Ω				Wound on Same Form With L24A
C	Peaking			131-2004		Used in Chassis 1-442, 1-437
D	Peaking					Wound on Same Form With L24C
L25A	Peaking	5.5Ω		131-2005		Used in Chassis 1-357, 1-274
B	Peaking	6.6Ω				Wound on Same Form With L25A
C	Peaking			131-2003		Used in Chassis 1-442, 1-437
D	Peaking					Wound on Same Form With L25C
L26	1st Sound IF	5.7Ω		130-0001		
L27	2nd Sound IF	2.7Ω	2.7Ω	120-0001		
L28	Ratio Det. Primary	2.7Ω		128-0004		
L29	Ratio Det. Secondary	2.8Ω		128-0005		Tap at 1.4Ω
L30	Horiz. Disc. Trans.	80Ω	40Ω	128-0006		
L31	Horiz. Osc. Coil	36Ω		146-0005		
L32	Horiz. Lin	7.6Ω		133-0001		
L33	Horiz. Size	40Ω		132-0001		

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA SYLVANIA PART No. FUSE	REPLACEMENT DATA SYLVANIA PART No. HOLDER	REPLACEMENT DATA LITTELFUSE PART No. FUSE	REPLACEMENT DATA LITTELFUSE PART No. HOLDER	REMARKS
M1	3AG	.250A	191-0005	487-0008	312.250	357001	

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA SYLVANIA PART No.		NOTES
M 2	Bayonet	6-8	.15	Brown	611-0047		Type #47 (Channel Indicator)
M 3	Bayonet	6-8	.15	Brown	611-0047		Type #47 (Cabinet Light - Not used in all Models.

MISCELLANEOUS

ITEM No.	PART NAME	SYLVANIA PART No.	NOTES
M4A	RF Tuner	323-0002	Chassis 1-357, 1-442, 1-437
B	RF Tuner	323-0004	Chassis 1-274
M5	Focus Magnet	400-0007	
M6A	Ion Trap	400-0009	Chassis 1-357, 1-442, 1-437
B	Ion Trap	400-0006	Chassis 1-274
M7	Switch Arm Assembly	743-0002	Channel Indicator Light
	Safety Glass	710-0002	Models 7160B, 7150M, 7140MA, 7130MFA, 7120MFA, 7110XFA 7140WA
	Safety Glass	710-0005	Model 5150M
	Knob	792-0004	Pointer
	Knob	743-0006	Band Change (Models 7160B, 7150M, 7140WA, 7140MA, 5150M
	Knob	743-0004	Band Change (Model 7110XFA)
	Knob	740-0011	Inner
	Knob	744-0011	Brightness
	Knob	740-0013	Antenna (Models 7160B, 7150M, 7140WA, 7140MA, 5150M, 7130MFA, 7110XFA
	Knob	740-0012	Antenna (Model 7120MFA)
	Knob	743-0002	Function Switch (Models 7160B, 7150M, 5150M Only)

RADIO PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA SYLVANIA PART No.	REPLACEMENT DATA STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V26	Converter	7F7	7F7	7AC	
V27	1st FM-AM IF Amp.	6BA6	6BA6	7BK	
V28	2nd IF Amp.	6BA6	6BA6	7BK	
V29	Ratio Detector -AVC AF Amplifier	6T8	6T8	9E	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA SYLVANIA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C97	4	50	161-1008	PRS150/4		BR550		TVA-1303	Stabilizing Cap
C98	200	500	163-0200	1468-0002	D6-201	5W5T2	GP2K-200	1FM-32	Line Ant. Coupling
C99	6		166-0006D				NPOK-6		Fixed Trimmer
C100	25	500	163-0025	1468-000025	D6-250	5W5Q25	GP1K-25	MS-425	RF Coupling
C101	250	500	163-0250	1468-00025	D6-251	5W5T25	GP2K-250	1FM-325	AVC Filter
C102	50	500	163-0050	1468-00005	D6-500	5W5Q5	GP1K-50	1FM-45	Osc. Grid
C103	4		166-0004P				NPOK-4		Osc. Feedback
C104	10	500	163-0010	1468-00001	D6-100	5W5Q1	GP1K-10	1FM-41	Osc. Cathode Bypass
C105	50	500	163-0050	1468-00005	D6-500	5W5Q5	GP1K-50	1FM-45	Osc. Feedback
C106	6		166-0006N				N470K-6		Fixed Trimmer
C107	100	500	163-0100	1468-0001	D6-101	5W5T1	GP1K-100	1FM-31	Osc. Feedback
C108	15		166-0015P		TCN-15		N750K-15	19C6	Fixed Trimmer
C109	6		166-0006D	SI6.8NPO	TCZ-6.8		NPOK-6.8		Fixed Trimmer
C110	50	500	163-0050	1468-00005	D6-500	5W5Q5	GP1K-50	1FM-45	Conv. Cathode
C111	.02	200	162-0612	P488-02	DF-203	PTE4S2		2TM-S2	AVC Filter
C112	20000		198-0008	SI20000	DF-203	PTE4S2		4TM-S2	Conv. Cathode
C113	.002	600	162-0622	P688-002	D6-203	PTE6D2	GP2M-002	6TM-D2	Fixed Trimmer
C114	500	500	163-0500	1468-0005	D6-501	5W5T5	GP1K-500	1FM-35	Fixed Trimmer
C115	100	500	163-0100	1468-0001	D6-101	5W5T1	GP1K-100	1FM-31	RF Bypass

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Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

TELE-KING
MODELS 201, 202

HOWARD W. SAMS & CO., INC. • Indianapolis, Indiana

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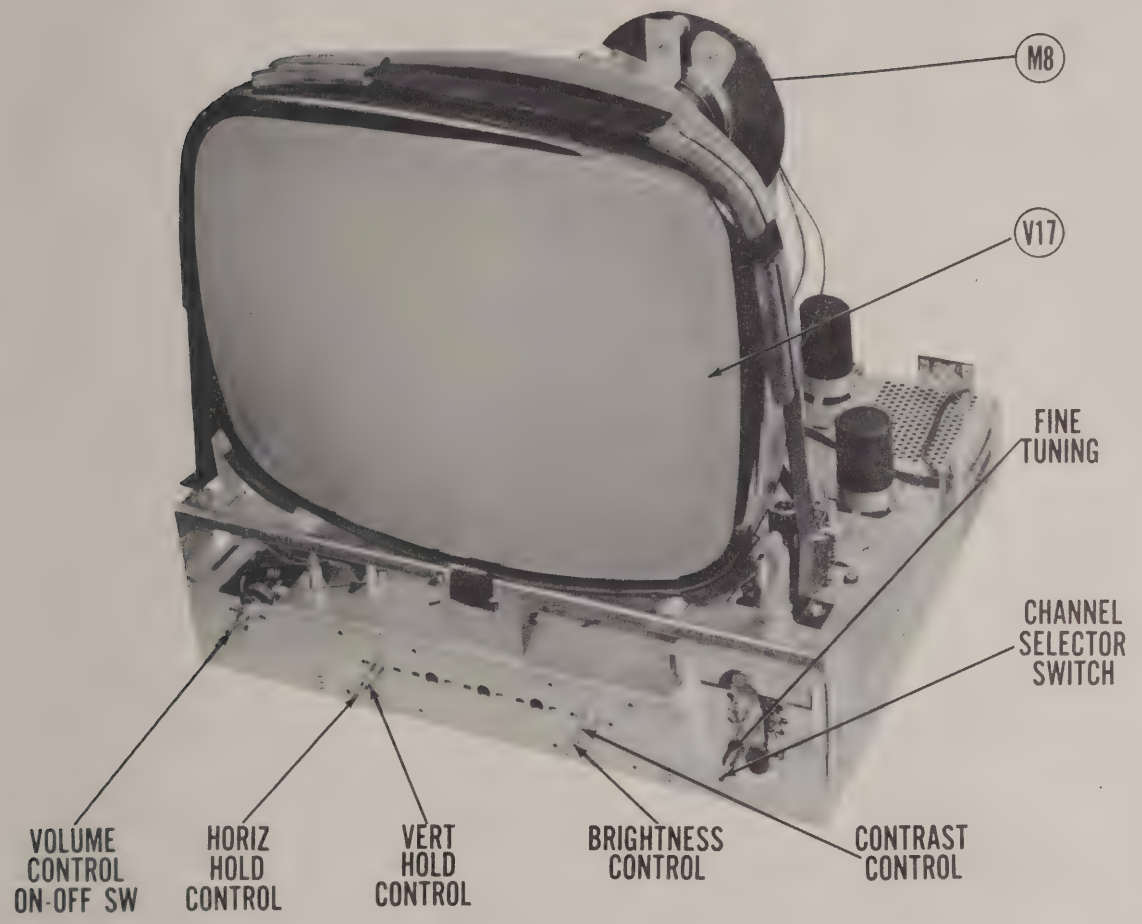
DATE 5-51 SET 131 FOLDER 16



TELE-KING
MODELS 201, 202

TRADE NAME	TeleKing Models 201, 202
MANUFACTURER	TeleKing Corp., 601 W. 26 St., New York (1), N.Y.
TYPE SET	Television Receiver
TUBES	Seventeen
POWER SUPPLY	110-120 Volts AC- 60 Cycle
RATING	1.52 Amp. @ 117 Volts AC
TUNING RANGE—	Channels 2 thru 13

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Voltage And Resistance Measurements 6

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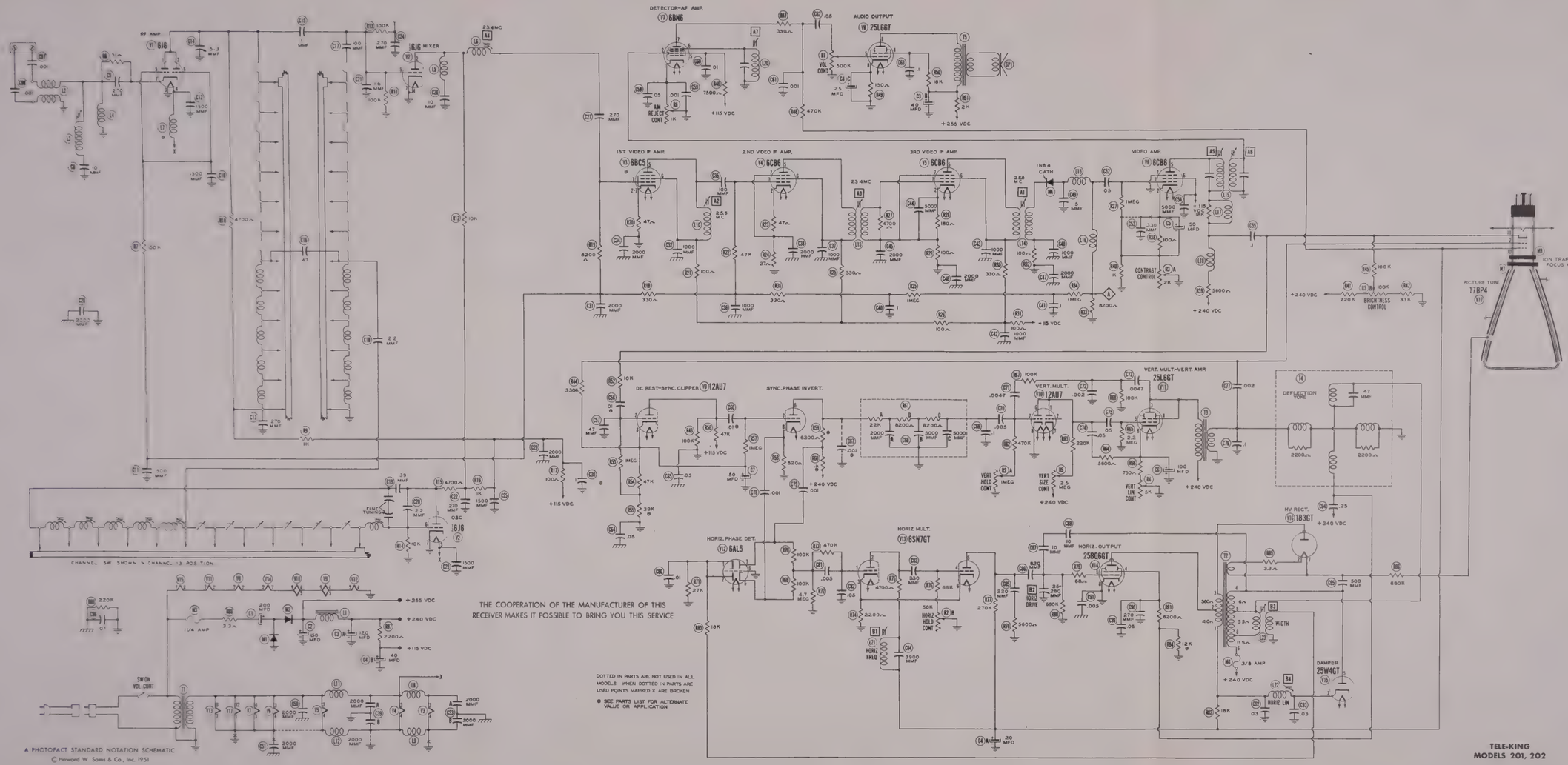

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DOTTED IN PARTS ARE NOT USED IN ALL MODELS WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN

⊕ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

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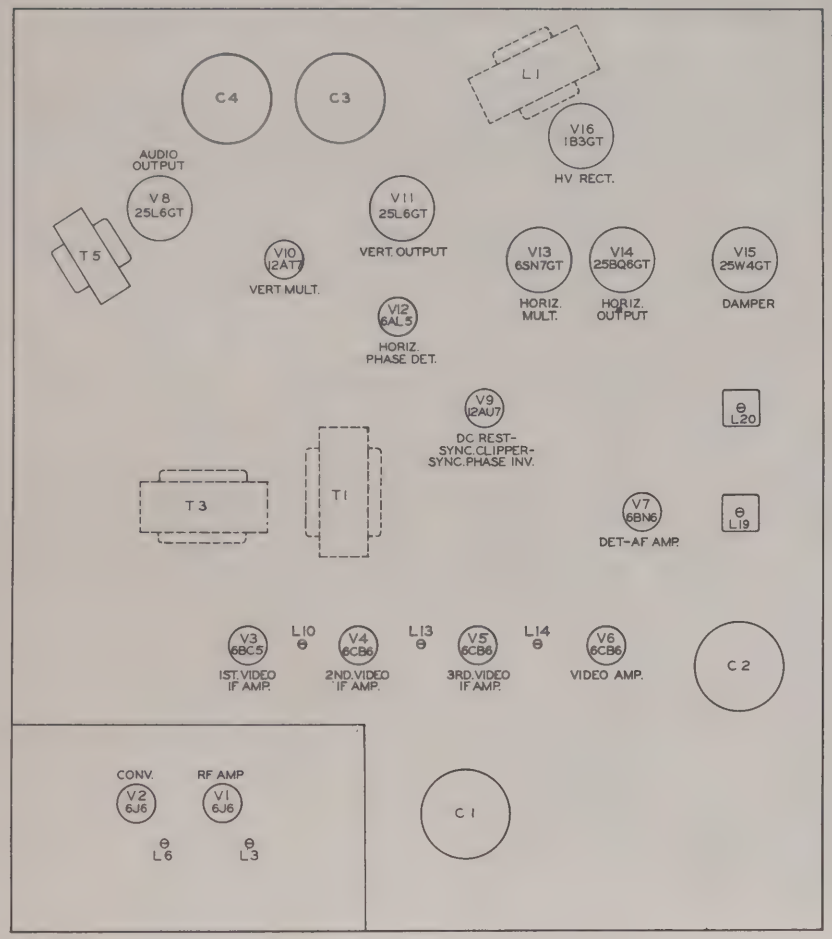
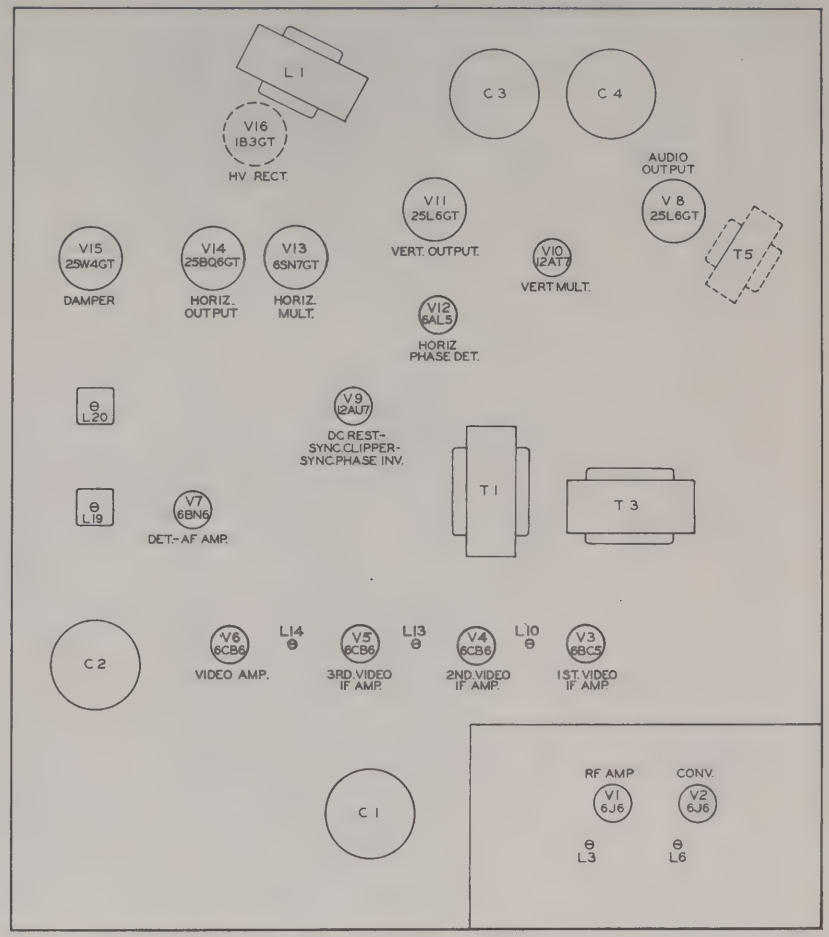
TELE-KING
MODELS 201, 202

TELE-KING
MODELS 201, 202



TOP VIEW



BOTTOM VIEW

TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The end of the high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube to disable the high voltage.

Use an isolation transformer to protect the test equipment.

VIDEO IF ALIGNMENT

Remove the converter tube (V2) and replace it with a 6J6 which has pin 1 removed. This will disable the local oscillator and prevent the possibility of erroneous indications.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube (V2). Low side to B-.	25.6MC (Unmod.)	Any	DC probe to Point (A). Common to B-.	A1, A2	Adjust for maximum deflection.
2.	"	"	23.4MC	"	"	A3, A4	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	Direct	High side to an ungrounded tube shield floating over dummy converter tube (V2). Low side to B-.	24MC (10MC SWP)	21.6MC 25.6MC 26.1MC	Any	Vert. amp. to Point (A). Low side to B-.		Check for response curve similar to figure 1. If necessary retouch A1 thru A4 for proper response.

SOUND IF ALIGNMENT

Tune in a TV station and connect an attenuator in series with the antenna.
Attenuate the input until the sound signal drops below the limiting level of the 6BN6, this will be indicated by a hiss similar to superregeneration.
Adjust the sound take off transformer (A5 and A6) for maximum audio.
Adjust the quadrature coil (A7) for bestquality audio.
Adjust the AM rejection control for MINIMUM intercarrier buzz.
If during any of the above adjustments the signal risesabove the limiting level, as indicated by the hiss disappearing, reduce the signal input until the hiss returns.

THE RF AND OSCILLATOR PORTION OF THIS RECEIVER HAS BEEN PRE-SET AT THE FACTORY AND IS VERY STABLE. ALIGNMENT OF THIS PORTION IN THE FIELD IS NOT RECOMMENDED. IF MIS-ALIGNMENT OF THE TUNER IS SUSPECTED, CONSULT THE RECEIVER MANUFACTURER.

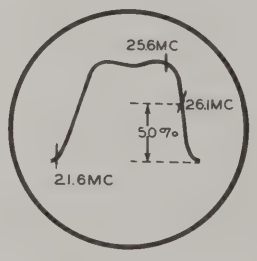


FIG. 1

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Turn the horizontal hold control to the mid-position of its range.

Adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally.

Turn the hold control to maximum clockwise, then slowly counter clockwise. The picture should synchronize after approximately 1/4 turn and should show 3 or 4 sloping bars just before the picture synchronizes.

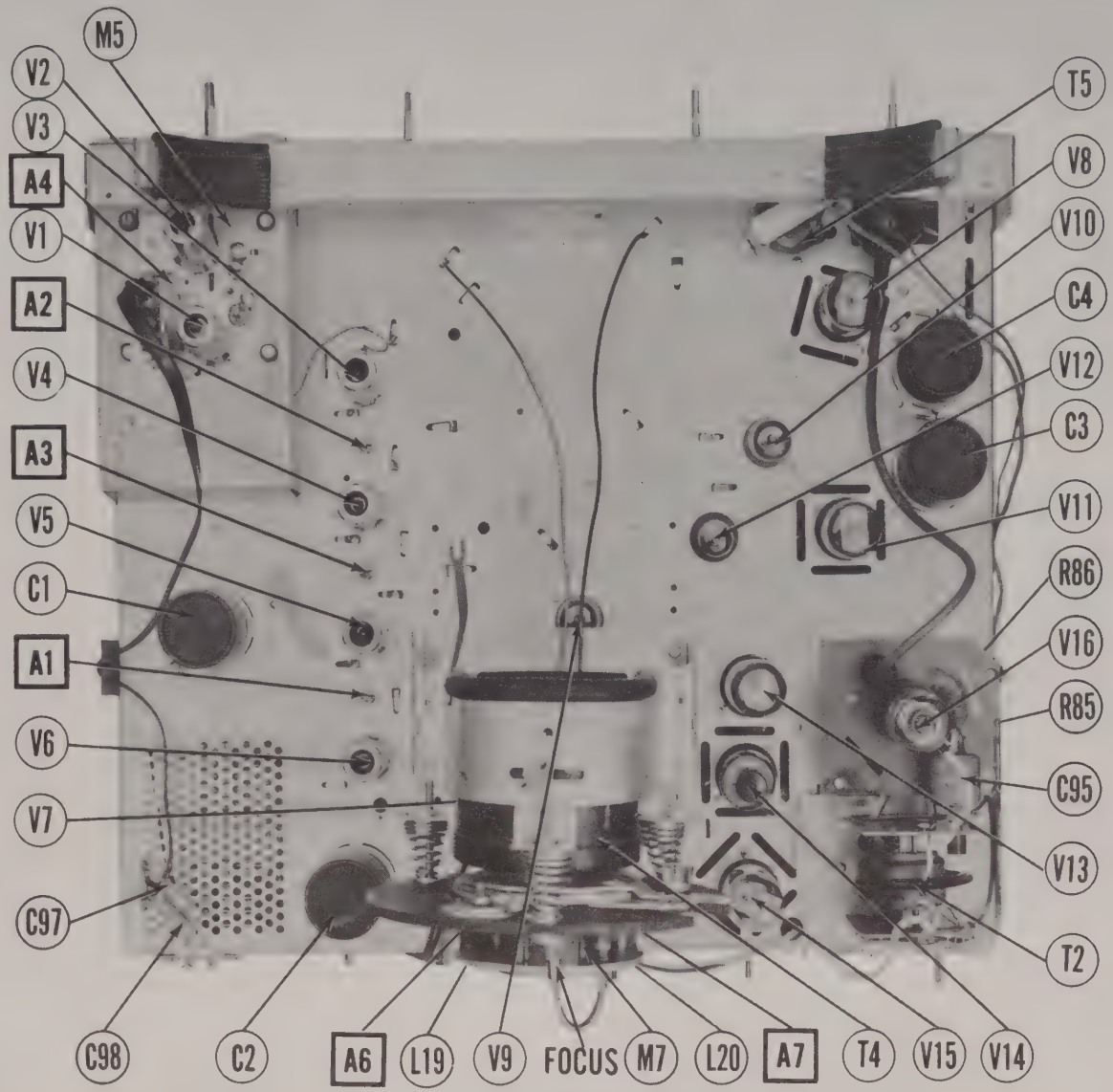
Turn the hold control to maximum counter-clockwise and repeat the check. The picture should fall into sync after approximately 1/4 turn from each extreme , and should show, in each case, 3 or 4 sloping bars at the pull in point.

Adjust the horizontal drive trimmer (B2) for the best compromise between brightness and horizontal linearity.

Adjust the width slug (B3) until the picture fills the mask.

Adjust the horizontal linearity slug (B4) until the picture is symmetrical from left to right.

Slight readjustment of B2 may be necessary to obtain optimum results.



CHASSIS TOP VIEW

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6J6	95VDC	95VDC	0V	6.3VAC	-1.6VDC	-1.6VDC	.3VDC		
V 2	6J6	90VDC	85VDC	6.3VAC	0V	-1.6VDC	§-4.2VDC	0V		
V 3	6BC5	-.6VDC	.1VDC	6.3VAC	0V	110VDC	110VDC	.1VDC		
V 4	6CB6	-.6VDC	.6VDC	6.3VAC	0V	105VDC	105VDC	.2VDC		
V 5	6CB6	.8VDC	2.3VDC	6.3VAC	0V	107VDC	107VDC	.8VDC		
V 6	6CB6	.5VDC	9.4VDC	6.3VAC	0V	190VDC	115VDC	0V		
V 7	6BN6	8VDC 0V	0V	0V	6.3VAC	65VDC 60VDC	0V	360VDC 20VDC		
V 8	25L6GT	0V	45VAC	140VDC	115VDC	0V	0V	69VAC	8VDC	
V 9	12AU7	75VDC	.6VDC	9.5VDC	6VAC	6VAC	150VDC	1.8VDC	12VDC	12VAC
V 10	12AU7	175VDC 35VDC	0V	0V	12VAC	12VAC	175VDC 35VDC	-40VDC -3VDC	0V	19VAC
V 11	25L6GT	0V	69VAC	235VDC 215VDC	235VDC 215VDC	0V	240VDC 20VDC	92VAC	30VDC 20VDC	
V 12	6AL5	.1VDC	.1VDC	6VAC	0V	4.6VDC	0V	-3.8 VDC		
V 13	6SN7GT	.2VDC	320VDC	15VDC	-3.2VDC	125VDC	15VDC	0V	6.3VAC	
V 14	25BQ6GT	0V	45VAC	0V	145VDC	-28VDC	0V	19VAC	0V	TOP CAP *
V 15	25W4GT	0V	0V	480VDC	0V	235VDC	235VDC	117VAC	92VAC	
V 16	1B3GT	* DO NOT MEASURE								
V 17	17BP4	0V	3.8VDC	PIN 10 355VDC	PIN 11 90VDC	PIN 12 6.3VAC				

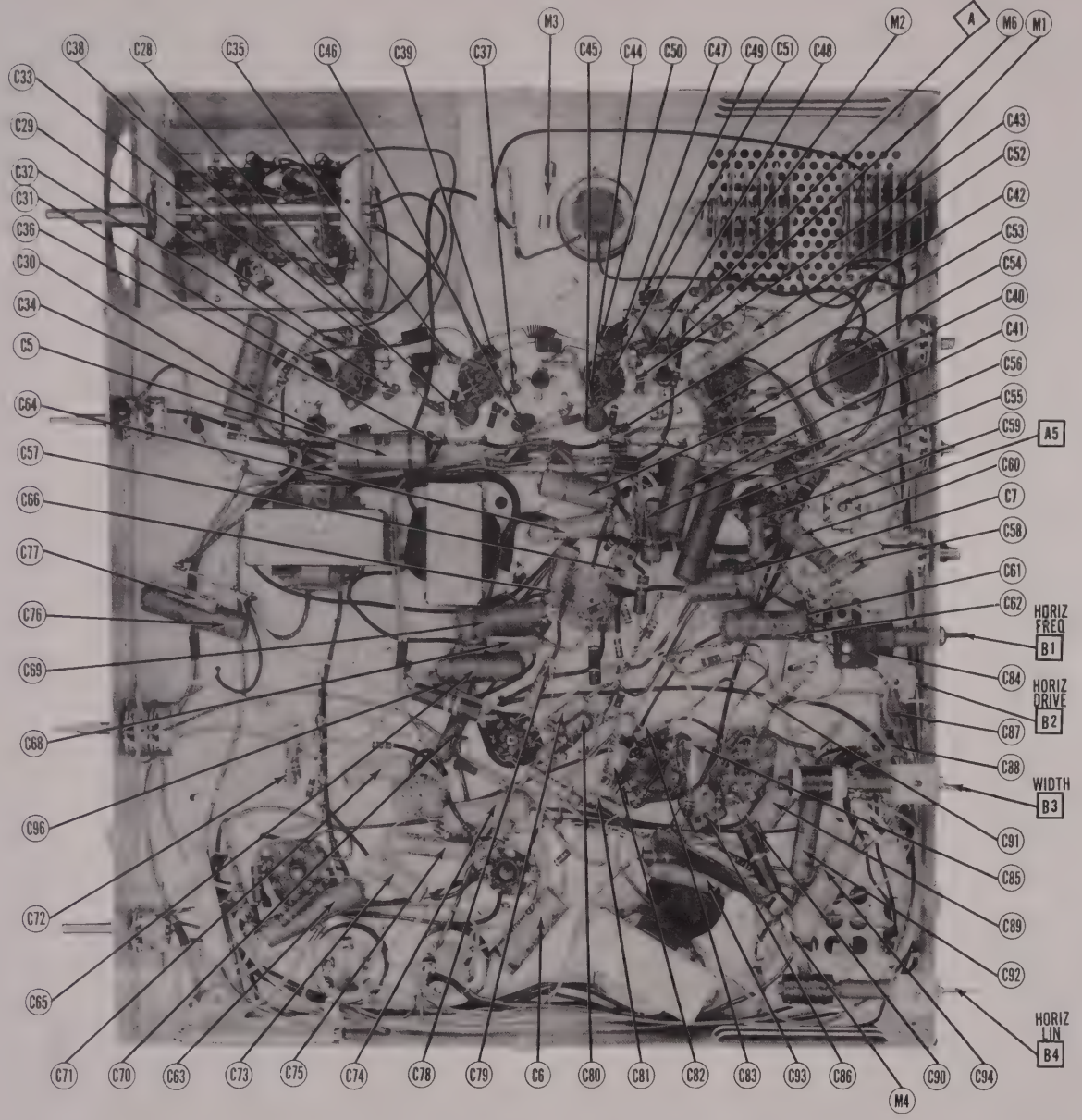
§ TAKEN WITH VACUUM TUBE VOLTMETER
* DO NOT MEASURE
VOLTAGE AND RESISTANCE MEASUREMENT ARE TAKEN WITH PICTURE TUBE REMOVED.

RESISTANCE READINGS

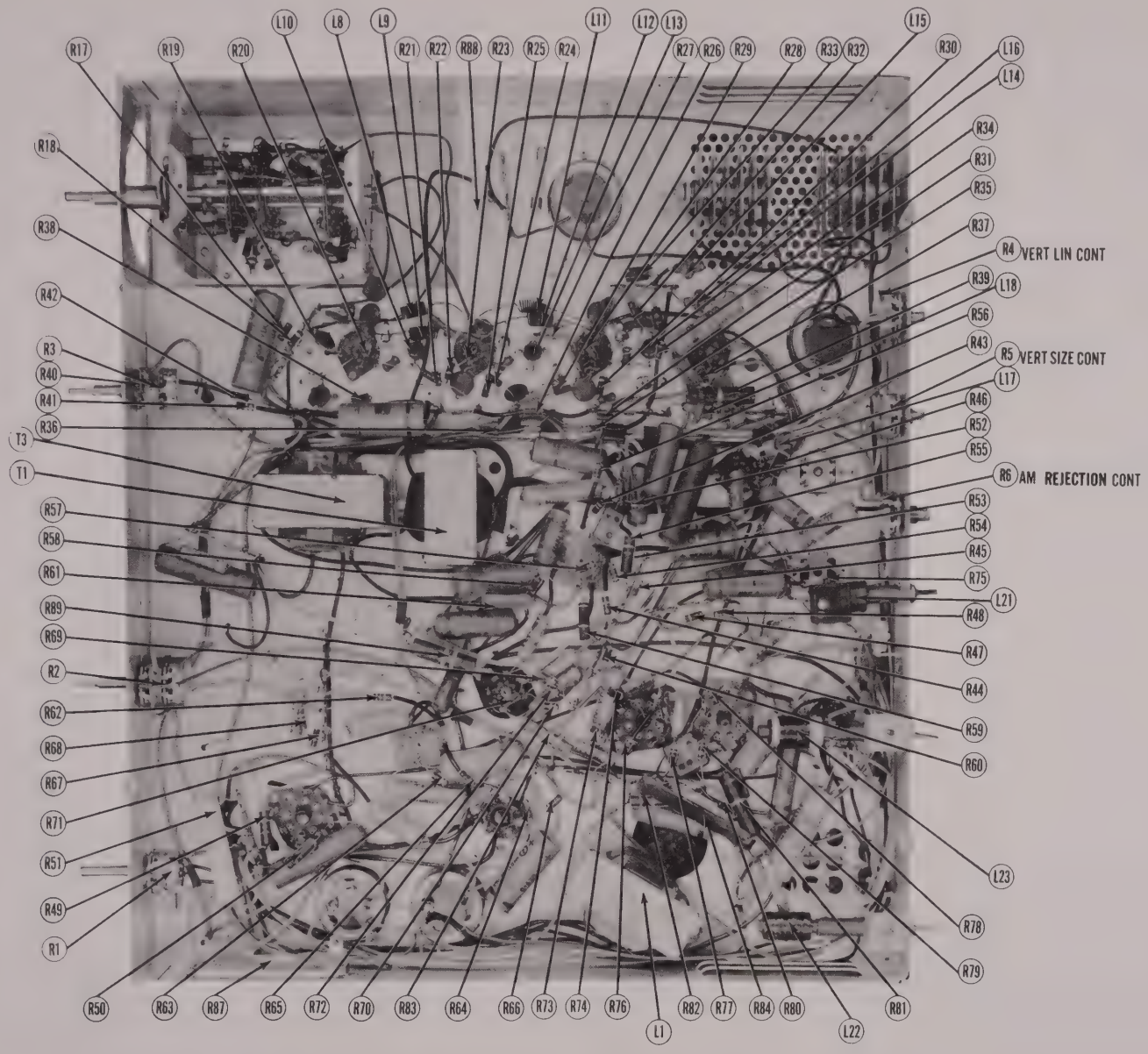
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6J6	†3.4KΩ	†3.4KΩ	0Ω	.2Ω	2.2Meg	2.2Meg	55Ω		
V 2	6J6	†8KΩ	†13KΩ	.2Ω	0Ω	100KΩ	10KΩ	0Ω		
V 3	6BC5	2Meg	47Ω	.2Ω	0Ω	†2.6KΩ	†2.6KΩ	47Ω		
V 4	6CB6	2Meg	75Ω	.2Ω	0Ω	†2.8KΩ	†2.8KΩ	27Ω		
V 5	6CB6	100Ω	280Ω	.2Ω	0Ω	†2.7KΩ	†2.7KΩ	100Ω		
V 6	6CB6	1Meg	750Ω	.2Ω	0Ω	†5.7KΩ	†2.3KΩ	0Ω		
V 7	6BN6	1KΩ 0Ω	2.6Ω	0Ω	.2Ω	†9.8KΩ	3.8Ω	#490KΩ		
V 8	25L6GT	Inf.	18Ω	†2.3KΩ	†20KΩ	0Ω	Inf.	25Ω	150Ω	
V 9	12AU7	40KΩ	1Meg	40KΩ	5Ω	5Ω	†7.3KΩ	1.1Meg	820Ω	8Ω
V 10	12AU7	†220KΩ †2.7Meg	Inf.	Inf.	8Ω	8Ω	†220KΩ †2.7Meg	1.5Meg	0Ω	11Ω
V 11	25L6GT	Inf.	25Ω	† 720Ω	†720Ω	2.2Meg	† 0Ω †2.5Meg	26Ω	5.8KΩ 750Ω	
V 12	6AL5	11KΩ	11KΩ	5Ω	0Ω	4.8Meg	0Ω	4.8Meg		
V 13	6SN7GT	5.2Meg	†23KΩ	2.2KΩ	120KΩ	#290KΩ	2.2KΩ	0Ω	.2Ω	
V 14	25BQ6GT	Inf.	18Ω	Inf.	†6.3KΩ	680KΩ	5.6KΩ	11Ω	0Ω	TOP CAP #60Ω
V 15	25W4GT	Inf.	Inf.	110KΩ	Inf.	†95Ω	†130Ω	22Ω	26Ω	
V 16	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP #420Ω
V 17	17BP4	0Ω	450KΩ	PIN 10 #18KΩ	PIN 11 200KΩ	PIN 12 .2Ω				

† MEASURED FROM OUTPUT OF M2
# MEASURED FROM PIN 3 OF V15

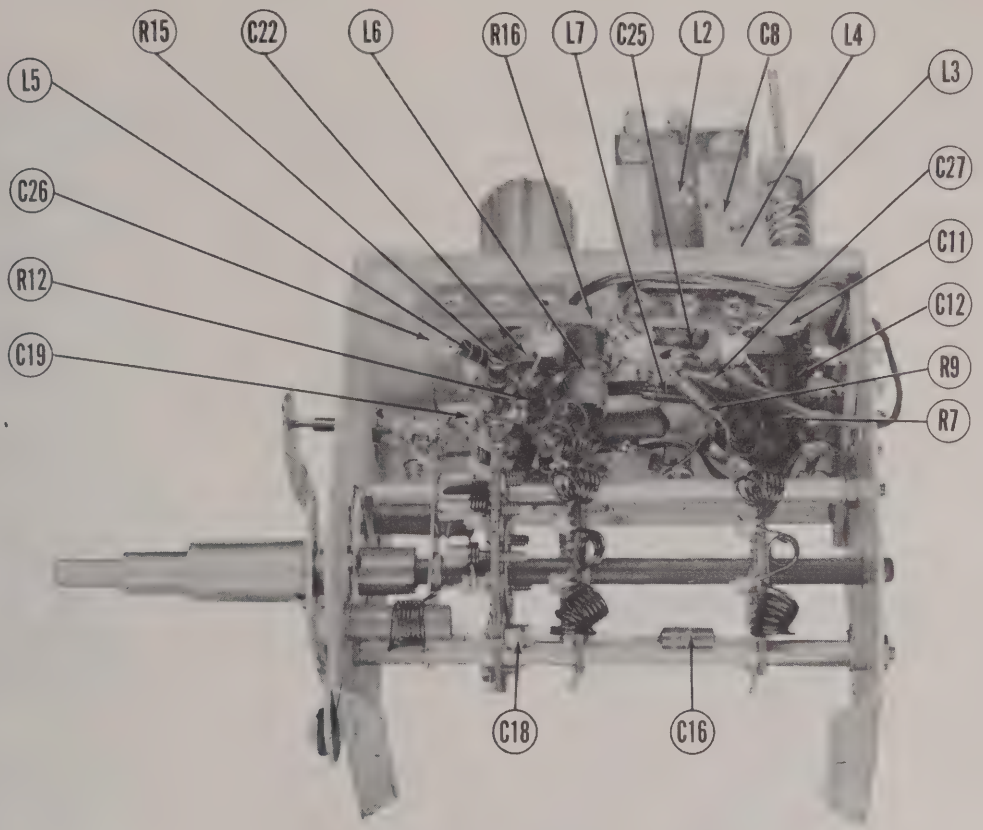
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



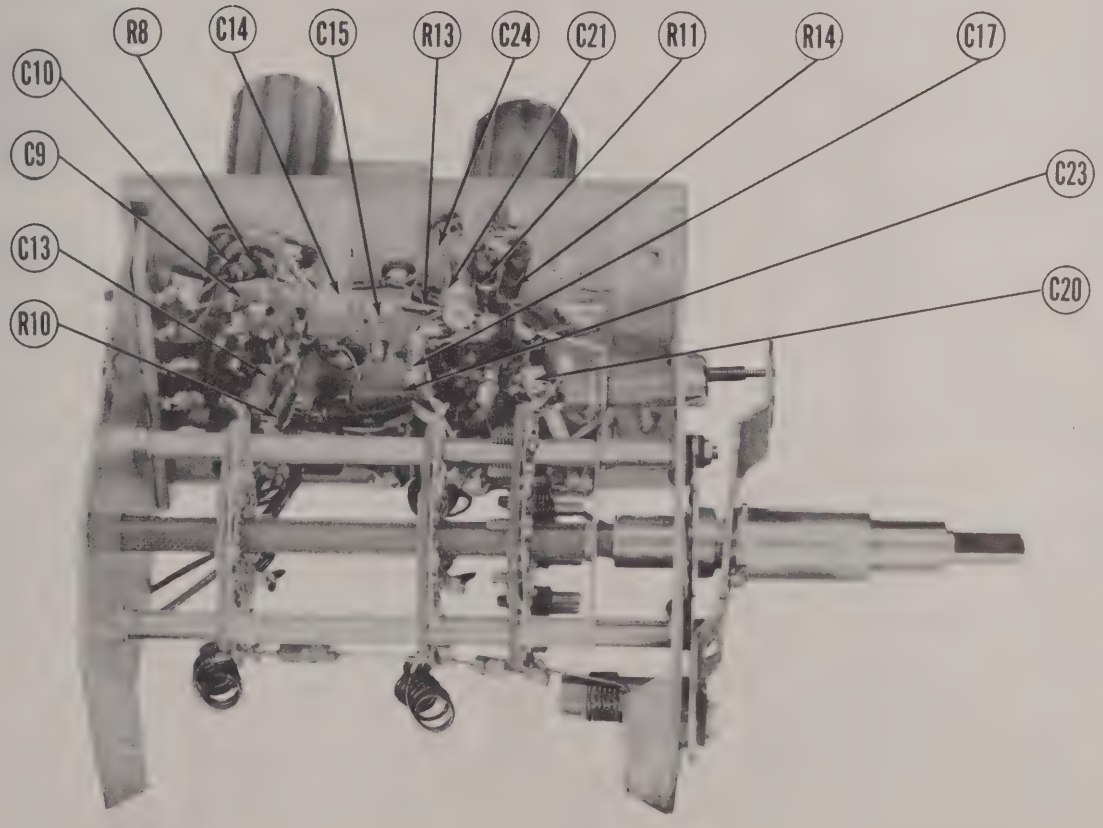
CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: TELEKING PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amplifier		6J6	7BF	
V2	Converter		6J6	7BF	
V3A	1st Video IF Amp.		6BC5	7BD	
B	1st Video IF Amp.		6AG5	7BD	
V4	2nd Video IF Amp.		6CB6	6CK	
V5	3rd Video IF Amp.		6CB6	6CK	
V6	Video Amplifier		6CB6	6CK	
V7	Detector -AF Amp.		6BN6	7DF	
V8	Audio Output		25L6GT	7AC	
V9	DC Restorer - Sync. Clipper - Sync. Phase Inverter		12AU7	9A	
V10	Vert. Mult.		12AU7	9A	
V11	Vert. Mult.-Vert. Output		25L6GT	7AC	
V12	Horiz. Phase Det.		6AL5	6BT	
V13	Horiz. Mult.		6SN7GT	8BD	
V14	Horiz. Output		25BQ6GT	6AM	
V15	Damper		25W4GT	4CG	
V16	H.V. Rectifier		1B3GT	7D	
V17	Picture Tube		17BP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TELEKING PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1	200	150		E4A113		UPE1O1O15		TVL-1431	Voltage Divider Cap
C2	150	300		E4A114		UPE12535		TVL-1584	Filter
C3A	120	300		AFH244G		UPT125430		R1082	▲ Filter
B	40	300		PRS350/20					▲ Filter
C4A	20	450		AFH8814A		UP4245C		TVL-4729	■ Decoupling
B	40	300							▲ Filter
C	25	25							▲ Output Cathode
C5	50	25		PRS25/50		BR502A		TVA-1206	V. Amp. Cathode
C6	100	25		PRS25/100		BRH251A		TVA-1207	Vert. Amp. Cathode
C7	50	25		PRS25/50		BR502A		TVA-1206	DC Res. Cathode
C8	10			SI10	D6-100		GP1K-10	19C19	Fixed Trimmer
C9	270			SI270	D6-271		GP2K-270	19C31	RF Amp. Cathode
C10	1500			SI1500	D6-152		GP2L-0015	29C8	AGC Filter
C11	1500			SI1500	D6-152		GP2L-0015	29C8	AGC Filter
C12	1500			SI1500	D6-152		GP2L-0015	29C8	RF Amp. Fil.
C13	270			SI270	D6-271		GP2K-270	19C31	RF Amp. Plate Dec.
C14	.5-3				829-3				Variable Trimmer
C15	.1				TCZ-.1				RF Coupling
C16	.47				TCZ-.5				RF Coupling
C17	100			SI100	D6-101		GP1K-100	19C11	RF Coupling
C18	2.2				TCZ-2.2				Osc. Coupling
C19	39			SI39	D6-390		GP1K-39		Osc. Feedback
C20	2.2				TCZ-2.2				Osc. Feedback
C21	1-6				829-6				Variable Trimmer
C22	270			SI270	D6-271		GP2K-270	19C31	Conv. Decoupling
C23	1500			SI1500	D6-152		GP2L-0015	29C8	Conv. Fil. Bypass
C24	270			SI270	D6-271		GP2K-270	19C31	RF Bypass
C25	1500			SI1500	D6-152		GP2L-0015	29C8	RF Bypass
C26	10			SI10	D6-100		GP1K-10	19C3	Fixed Trimmer
C27	270			SI270	D6-270		GP2K-270	19C31	IF Coupling
C28	2000			SI2000	D6-202	1W5D2	GP2L-002	29C2	RF Bypass
C29	2000			BPD-002	DD-202	1W5D2	80I-002	29C2	RF Bypass
C30	.1	600		P688-1	DF-104	PTE6P1		6TM-P1	RF Bypass
C31	2000			BPD-005	DD-202	1W5D2	80I-002	29C2	AGC Filter
C32	1000			SI1000	D6-102	1W5D1	GP2L-001	19C1	1st V. IF Dec.
C33A	2000			BPD-2X001	DD-2-202	1W5D2	812-2X002	29C5	1st V. IF Fil.
B	2000					1W5D2			1st V. IF Fil.
C34	2000			BPD-002	DD-202	1W5D2	80I-002	29C2	RF Bypass
C35	100			SI100	D6-101	5W5T1	GP1K-100	19C11	IF Coupling
C36	1000			SI1000	D6-102	1W5D1	GP2L-001	19C1	AGC Filter
C37	1000			SI1000	D6-102	1W5D1	GP2L-001	19C1	2nd V. IF Dec.
C38	2000			BPD-002	DD-202	1W5D2	80I-002	29C2	2nd V. IF Cathode
C39A	2000			BPD-2X002	DD-2-202	1W5D2	812-2X002	29C5	2nd V. IF Fil.
B	2000					1W5D2			2nd V. IF Fil.
C40	.1	300		P288-1	DF-104	PTE4P1		2TM-P1	AGC Filter
C41	.1	300		P288-1	DF-104	PTE4P1		2TM-P1	AGC Filter
C42	1000			SI1000	D6-102	1W5D1	GP2L-001	19C1	RF Bypass
C43	1000			SI1000	D6-102	1W5D1	GP2L-001	19C1	3rd V. IF Dec.
C44	5000			BPD-005	DD-502	1D5D5	81I-005	29C1	3rd V. IF Cathode
C45	2000			BPD-002	DD-202	1W5D2	80I-002	29C2	3rd V. IF Cathode
C46	2000			BPD-002	DD-202	1W5D2	80I-002	29C2	RF Bypass
C47	2000			BPD-002	DD-202	1W5D2	80I-002	29C2	RF Bypass
C48	1000			SI1000	D6-102	1W5D1	GP2L-001	19C1	RF Bypass
C49	5	500		1468-50005	TCZ-5	5W5V5	GP1K-5	MS-55	V. Det. Filter
C50	2000			BPD-002	DD-202	1W5D2	80I-002	29C2	3rd V. IF Fil.
C51	2000			BPD-002	DD-202	1W5D2	80I-002	29C2	3rd V. IF Fil.
C52	.05	600		P688-05	DF-503	PTE6S5		6TM-S5	Video Coupling
C53	330	500		1468-33001	D6-331	5W5T3	GP2K-330	1FM-335	V. Amp. Cathode
C54	5000			BPD-005	DD-502	1D5D5	81I-005	29C1	RF Bypass
C55	.1	600		P688-1	DF-104	PTE6P1		6TM-P1	Video Coupling
C56	.01	600		P688-01	D6-103	PTE6S1	821-01	6TM-S1	Video Coupling *
C57	47	500		1468-00005	D6-471	5W5Q5	GP1K-47	1FM-45	Sync. Clipper-DC Res. Grid
C58	.05	600		P688-05	DF-503	PTE6S5		6TM-S5	Det.-AF Amp. Cath.
C59	.001	600		P688-001	D6-102	PTE6D1	GP2L-001	6TM-D1	Det.-AF Amp. Cathode
C60	.01	600		P688-01	D6-103	PTE6S1	821-01	6TM-S1	Det.- AF Amp. Screen
C61	.001	600		P688-001	D6-102	PTE6D1	GP2L-001	6TM-D1	De-emphasis
C62	.05	600		P688-05	DF-503	PTE6S5		6TM-S5	Audio Coupling
C63	.1	600		P688-1	DF-104	PTE6P1		6TM-P1	Output Screen
C64	.05	600		P688-05	DF-503	PTE6S5		6TM-S5	RF Bypass
C65	.05	600		P688-05	DF-503	PTE6S5		6TM-S5	RF Bypass
C66	.01	600		P688-01	D6-103	PTE6S1	821-01	6TM-S1	Sync. Coupling *
C67	.001	600		P688-001	D6-102	PTE6D1	GP2L-001	6TM-D1	Sync. Phase Inv. Plate †

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TELEKING PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C68A	2000		†	P688-002	} †	PTE6D2	GP2M-002	6TM-D2	Integrator Net
B	5000			P688-005	PC-100	PTE6D5	81I-005	6TM-D5	Integrator Net
C	5000			P688-005		PTE6D5		6TM-D5	Integrator Net
C69	.1	600		P688-1	DF-104	PTE6P1		6TM-P1	Integrator Net
C70	.005	600		P688-005	D6-502	PTE6D5	81I-005	6TM-D5	Vert. MV Grid
C71	.0047	1000		P1068-0047		PTE6ID5		MB-D47	Vert. MV Feedback
C72	.002	600		P688-002	D6-202	PTE6D2	GP2M-002	6TM-D2	Voltage Divider
C73	.0047	1000		P1068-0047		PTE6D5		MB-D47	Vert. MV Feedback
C74	.05	600		P688-05		PTE6S5		6TM-S5	Vert. Discharge
C75	.05	600		P688-05	DF-503	PTE6S5		6TM-S5	Vert. Sweep Coupling
C76	.1	600		P688-1	DF-104	PTE6P1		6TM-P1	Fixed Trimmer
C77	.002	600		P688-002	D6-202	PTE6D2	GP2M-002	6TM-D2	Vert. Sweep Coupling
C78	.001	600		P688-001	D6-102	PTE6D1	GP2L-001	6TM-D1	Hor. Sync. Coupling
C79	.001	600		P688-001	D6-102	PTE6D1	GP2L-001	6TM-D1	Hor. Sync. Coupling
C80	.01	600		P688-01	D6-103	PTE6S1	821-01	6TM-S1	Voltage Divider
C81	.005	600		P688-005	D6-502	PTE6D5	81I-005	6TM-D5	AFC Filter
C82	.05	600		P688-05	DF-503	PTE6S5		6TM-S5	AFC Filter
C83	330	500		1468-00035	D6-331	5W5T3	GP2K-330	1FM-335	Hor. MV Feedback
C84	3900	500		1464-004		1DR5D4		MS-24	Fixed Trimmer
C85	220	500		SI220	D6-221	5R5T25	GP2K-220	MS-325	Horiz. Discharge
C86	820	500				1W5T8		MS-38	Horiz. Sweep Coupling
C87	10	1500		1469-HV-00909					Horiz. Feedback
C88	10	1500		1469-HV-00008					Horiz. Feedback
C89	.05	600		P688-05	DF-503	PTE6S5		6TM-S5	Horiz. Output Screen
C90	270	500		SI270	D6-271	5W5T25	GP2K-270	1FM-325	Horiz. Output Screen
C91	.005	600		P688-005	D6-502	PTE6D5	81I-005	6TM-D5	RF Bypass
C92	.03	600		P688-03		PTE6S3		6TM-S3	Damper Filter
C93	.03	600		P688-03		PTE6S3		6TM-S3	Damper Filter
C94	.25	400		P688-25		GT4P25		4TM-P25	Hor. Sweep Coupling
C95	500	20000		HV20C	TV2-502				H.V. Filter
C96	.05	600		P688-05	DF-503	PTE6S5		6TM-S5	RF Bypass
C97	.001	600		P688-001	D6-102	PTE6D1	GP2L-001	6TM-D1	Ant. Coupling
C98	.001	600		P688-001	D6-102	PTE6D1	GP2L-001	6TM-D1	Ant. Coupling

* Some models use .05MFD in this application.
† Not used in all models.
‡ Items C68A, C68B, C68C, R61A, R61B and R61C are combined into one unit.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TELEKING PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	500KΩ	‡	P-7	Q13-133	AG-60-Z	B-60-S	Volume Control
B	Shaft		Not req.	Not req.	FS-3	Not req.	Attach to R1A Per Instructions
C	Switch		Not req.	76-1	SWB	Not req.	Attach to R1A Per Instructions
R2A	1Meg	‡	}	Concentrikit			
B	50KΩ	‡	PD-5	B11-137 *	RTV-146 †	SBB-584	Vertical Hold Control - Front
C	Shaft End			B11-123 *			Horizontal Hold Control - Rear
				E-187 *			Attach Per Instructions in "Concentrikit"
R3A	2000Ω	‡	}	Concentrikit			
B	100KΩ	‡	PD-6	B11-112 *	RTV-253		Contrast Control - Front
C	Shaft End			B11-128 *			Brightness Control - Rear
				E-187 *			Attach Per Instructions in "Concentrikit"
R4A	5000Ω	‡	P-2	Q11-114	AM-19-S	AN-10	Vertical Linearity Control
B	Shaft		Not req.	Not req.	FKS-1/4	AK-1	Attach to R4A Per Instructions
R5A	2.5Meg	‡	P-5	Q11-239	AG-64-S	AN-83	Vertical Size Control
B	Shaft		Not req.	Not req.	FKS-1/4	AK-1	Attach to R5A Per Instructions
R6A	1000Ω	‡	P-12	Q11-108	AG-8-S	AN-5	AM Rejection Control
B	Shaft		Not req.	Not req.	FKS-1/4	AK-1	Attach to R6A Per Instructions

* Additional parts to be used with "Concentrikit".

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TELEKING PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ± 10% UNLESS OTHERWISE SPECIFIED
R7	150KΩ 20%	‡			RF Amp. Grid
R8	51Ω 5%	‡			RF Amp. Cathode
R9	1000Ω 20%	‡		BTS-1000	RF Amp. Plate Decoupling
R10	4700Ω 20%	‡		BTS-4700	RF Coil Shunt
R11	100KΩ 20%	‡			Mixer Grid
R12	10KΩ 20%	‡			Mixer Plate
R13	100KΩ 20%	‡		BTS-10K	Series Test Point
R14	10KΩ 20%	‡			Osc. Grid
R15	4700Ω	‡		BTS-4700	Osc. Plate
R16	1000Ω 20%	‡		BTS-1000	Decoupling
R17	100Ω 20%	‡		BTS-100	Decoupling
R18	330Ω	‡		BTS-330	AGC Network
R19	8200Ω	‡			1st Video IF Amp. Grid
R20	47Ω	‡			1st Video IF Amp. Cathode
R21	100Ω 20%	‡		BTS-100	1st Video IF Amp. Decoupling
R22	47KΩ	‡			2nd Video IF Amp. Grid
R23	47Ω	‡			2nd Video IF Amp. Cathode
R24	27Ω	‡			2nd Video IF Amp. Cathode
R25	330Ω	‡		BTS-330	2nd Video IF Amp. Decoupling
R26	100Ω 20%	‡		BTS-100	Decoupling
R27	4700Ω	‡		BTS-4700	3rd Video IF Transformer Shunt
R28	180Ω	‡		BTS-180	3rd Video IF Amp. Cathode
R29	100Ω 20%	‡		BTS-100	3rd Video IF Amp. Cathode
R30	330Ω	‡		BTS-330	3rd Video IF Amp. Decoupling
R31	100Ω 20%	‡		BTS-100	Decoupling
R32	100Ω 20%	‡		BTS-100	Video Det. Diode Load
R33	8200Ω 20%	‡		BTS-8200	Video Det. Diode Load
R34	1Meg	‡		BTS-1Meg	AGC Network
R35	1Meg	‡		BTS-1Meg	AGC Network
R36	330Ω	‡		BTS-330	AGC Network
R37	1Meg	‡		BTS-1Meg	Video Amp. Grid
R38	100Ω 20%	‡		BTS-100	Video Amp. Cathode
R39	5600Ω	2		BTB-5600	Video Amp. Plate
R40	1000Ω	‡		BTS-1000	Contrast Control Shunt
R41	220KΩ	‡		BTS-220K	Voltage Divider
R42	33KΩ	‡		BTS-33K	Voltage Divider
R43	100KΩ	‡		BTS-100K	DC Restorer Diode Load

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TELEKING PART No.	IRC PART No.	IDENTIFICATION CODES
R44	33OKΩ	‡		BTS-330K	Picture Tube Grid
R45	100KΩ	‡		BTS-100K	Picture Tube Cathode
R46	75000	1			AF Amp. Screen
					Parasitic Suppressor
R47	330Ω	‡			
R48	470KΩ	‡		BTS-470K	AF Amp. Plate
R49	150Ω	1		BTA-150	Output Cathode
R50	18KΩ 30%	1		BTA-18K	Output Screen
R51	2000Ω	10		1 3/4A-2000	Output Decoupling - Wire Wound
R52	10KΩ	‡		BTS-10K	Isolation
R53	1Meg	‡		BTS-1Meg	Sync. Clipper Grid
R54	47KΩ	‡		BTS-47K	Sync. Clipper Cathode
R55	39KΩ	1		BTA-39K	Sync. Clipper Cathode - See Note 1
R56	47KΩ	‡		BTS-47K	Sync. Clipper Plate
R57	1Meg	‡		BTS-1Meg	Sync. Phase Inv. Grid
R58	820Ω	‡		BTS-820	Sync. Phase Inv. Cathode
R59	8200Ω	1			Sync. Phase Inv. Plate - See Note 2
R60	10000Ω	‡		BTS-1000	Sync. Phase Inv. Plate - See Note 3
R61A	22KΩ	‡		BTS-22K	Integrator
B	8200Ω	‡		BTS-8200	Integrator
C	8200Ω	‡		BTS-8200	Integrator
R62	470KΩ 20%	‡		BTS-470K	Vertical Osc. Grid
R63	220KΩ	‡		BTS-220K	Vertical Osc. Plate
R64	5600Ω	‡		BTS-5600	Vertical Peaking
R65	2.2Meg	‡		BTS-2.2Meg	Vertical Output Grid
R66	750Ω	‡			Vertical Output Cathode
R67	100KΩ	‡		BTS-100K	Vertical Feedback
R68	100KΩ	‡		BTS-100K	Differentiator
R69	100KΩ	‡		BTS-100K	Horizontal Phase Det. Diode Load
R70	100KΩ	‡		BTS-100K	Horizontal Phase Det. Diode Load
R71	27KΩ	‡		BTS-27K	Horizontal Phase Det. Diode Load
R72	4.7Meg	‡		BTS-4.7Meg	Horizontal Phase Det. Diode Load
R73	470KΩ	‡		BTS-470K	Horizontal AFC Filter
R74	2200Ω	‡		BTS-2200	Horizontal MV Cathode
R75	4700Ω	‡		BTS-4700	Horizontal MV Plate
R76	68KΩ	‡		BTS-68K	Horizontal MV Grid
R77	270KΩ	‡		BTS-270K	Horizontal MV Plate
R78	5600Ω 20%	‡		BTS-5600	Horizontal Peaking
R79	68Ω	‡			Parasitic Suppressor
R80	680KΩ	1		BTS-680K	Horizontal Output Grid
R81	6200Ω	2			Horizontal Output Screen
R82	18KΩ	1		BTA-18K	Decoupling
R83	18KΩ	2		BTB-18K	Horizontal Feedback
R84	12KΩ	5		1 3/4A-12K	Voltage Divider - Wire Wound - See Note 4
R85	3.3Ω	‡			HV Rectifier Filament
R86	680KΩ	1			HV Filter
R87	2200Ω	10		1 3/4A-2250	Decoupling - Wire Wound
R88	3.3Ω	5			Surge Limiter - Wire Wound
R89	220KΩ	2		BTB-220K	Isolation

‡ Items R61A, R61B, T6IC, C68A, C68B and C68C are combined into one unit.
Note 1. Some models use 47KΩ resistor in this application.
Note 2. Some models use 4700Ω resistor in this application.
Note 3. Some models use 2200Ω resistor in this application.
Note 4. Some models use 18KΩ resistor in this application.

TRANSFORMER (FILAMENT)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: TELEKING PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC	② 6.3VAC .2A	② 3.7A					F-633

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: TELEKING PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T2	400Ω Tap 40Ω	23Ω Taps 11.5Ω and 17Ω SEC. 2 0Ω					Horiz. Output Trans.
T3	650Ω	10Ω					Vertical Output Trans.
T4A	35Ω						Horiz. Deflection Coil
B	96Ω						Vertical Deflection Coil

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: TELEKING PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T5	3.6KΩ	3.2Ω	275Ω	.5		A-3877	A-2928 ①	R0-2 ①	① Drill one new mounting hole.

PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	TELE KING PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.220A	70Ω	4.2 Henries		C-1411 ① ②		TR3300 ① ②	① Drill new mounting hole ② Mount above chassis.

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA			NOTES
		PRI.	SEC.	TELEKING PART No.	MEISSNER PART No.	IRC PART No.	
L2	Ant. Coil	1.3Ω	1.3Ω				
L3	FM Trap	0Ω					
L4	RF Choke	.6Ω				CLA	.82 Microhenry
L5	Conv. Plate Coil	0Ω					
L6	1st Video IF	.6Ω					
L7	Fil. Choke	0Ω					Not used in all models
L8	Fil. Choke	0Ω					
L9	Fil. Choke	0Ω					
L10	2nd Video IF	.2Ω					
L11	Fil. Choke	0Ω					
L12	Fil. Choke	0Ω					
L13	3rd Video IF	.3Ω	.3Ω				
L14	4th Video IF	.4Ω	.4Ω				
L15	Peaking	7.4Ω		LP-9			
L16	Peaking	9.8Ω		LP-10			
L17	Peaking	8.3Ω		LP-11			Wound on 18KΩ resistor
L18	Peaking	11Ω		LP-12			
L19	Sound IF	2.7Ω	2.6Ω	LTO-3			
L20	Quadrature Coil	3.8Ω		LIF-8			
L21	Horiz. Freq.	49Ω					
L22	Horiz. Lin.	22Ω					
L23	Width Coil	28Ω	28Ω				

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA			NOTES
	CURRENT	TELEKING PART No.	SYLVANIA PART No.	SELETRON PART No.	
M1	.225A		NF-5	604	
M2	.225A		NF-5	604	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			TELEKING PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M3	3AG	1 1/4A			31501.5		
M4	3AG	.375A			318.375		

MISCELLANEOUS

ITEM No.	PART NAME	TELEKING PART No.	NOTES
M5	RF Tuner		
M6	Crystal		1N-64 (Video Detector)
M7	Focus Magnet	LF-7	
M8	Ion Trap		
B2	Trimmer	CT-1	Horizontal Drive (25-280MMF)

V-M
MODEL 950 Supplement

V-M
MODEL 950 Supplement

SUPPLEMENTARY INFORMATION

This Supplementary Manual is to facilitate late production changes made on the V-M 950 Tri-O-Matic Record Changer. The mechanical function in late production of the V-M 950 Changer is the same as in early production. Also, most of the new parts are interchangeable with those used in early manufacture.

Reasons for additions and changes are noted on Pages 2 and 4, and each of the new parts are referred to in the exploded view.

By using this supplementary manual in conjunction with the V-M 950 service manual, all V-M 950 changers may be serviced.

This Folder is a Supplement to Set 107, Folder 13.

Manufactured by:

V-M CORPORATION
Benton Harbor, Michigan

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GENERAL INFORMATION

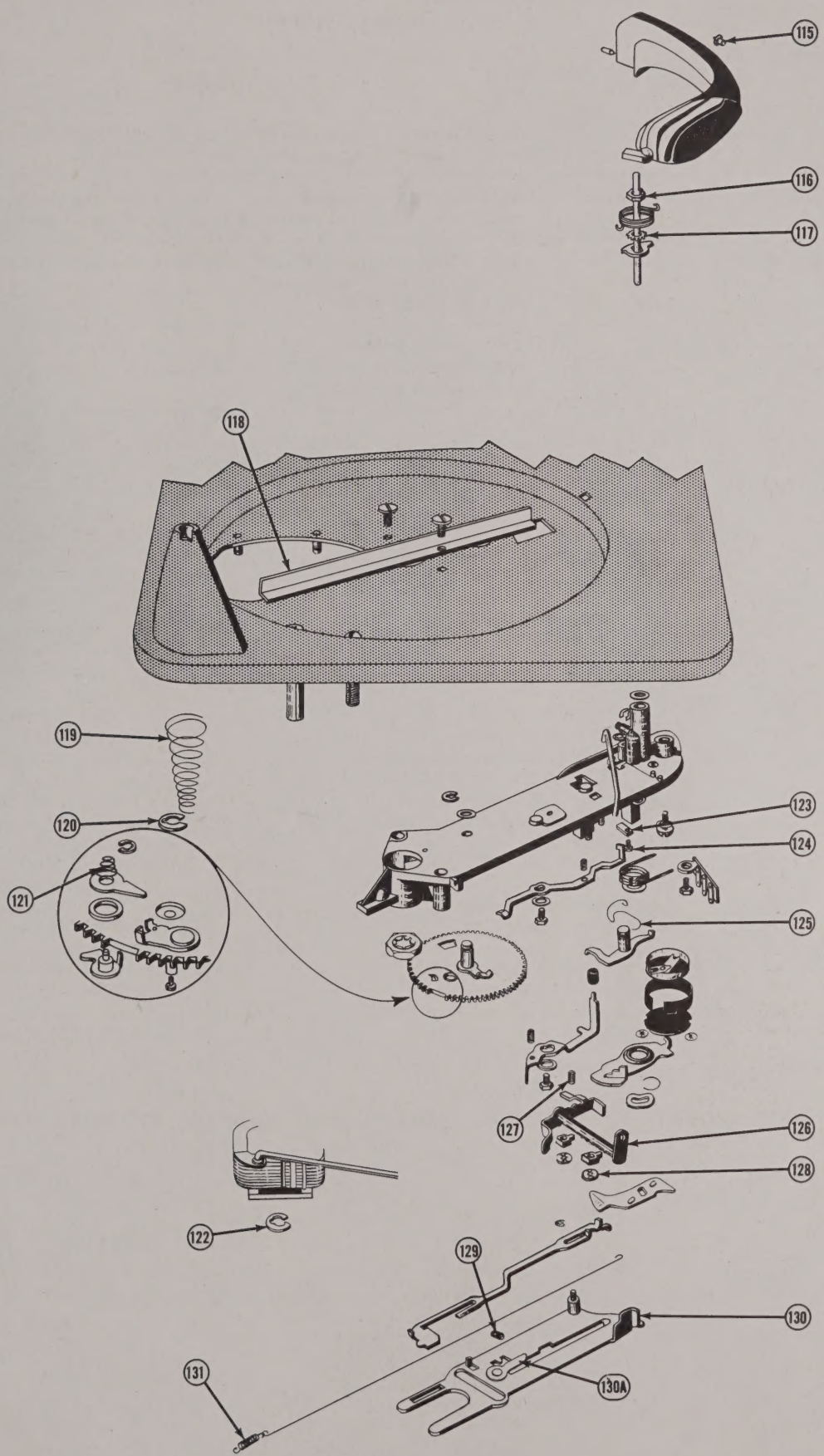
THE MODEL 950 SERVICE MANUAL MAY BE USED IN THE SERVICING OF ALL MODEL 950 TRI-O-MATIC RECORD CHANGERS, EVEN THOSE PRODUCED AFTER OCTOBER 15th, 1950 AT WHICH TIME MANY PRODUCTION CHANGES WENT INTO EFFECT. These changes are outlined in the following paragraphs and should be noted, as it is of the utmost importance when ordering replacement parts.

You will find that most of the new items are interchangeable with those used in earlier models with the exception of the shut-off lever (item 126) V-M part 2591. Should it become necessary to replace this item, the slide and cam assembly (item 120) V-M part 2288 should also be replaced and vice versa with the later design. (Refer to parts list in this supplementary manual).

The last record shut off mechanism has been altered slightly and functions as follows: When the last record is dropped to the turntable the record support arm also slides downward contacting the shut off bracket assembly. This, in turn, pivots the shut off lever (126) through the media of spring (131) and connecting shut off wire. However, the full pivot of the shut off lever (126) is blocked by the escape lever (130A) of the slide on cam assembly (130), which has moved in under the shut off lever. This prevents the changer from shutting off. As the changer completes the change cycle, the shut off lever (126) slides off the escape lever (130A) and drops into the slot of the cam and slide assembly (130). When the last record has been played, the change cycle starts again, however, this time, as the pickup arm moves outward, the way is clear for the shut off lever (126) to raise to the shut off position, thus causing the mechanism to shut off upon completing the change cycle (see "Change Cycle" in the V-M 950 Manual.

REASONS FOR ADDITIONS AND CHANGES
To The Record Changer Mechanism

REF. NO.	PART NO.	DESCRIPTION	REASON
115	3602	Hinge Button Bearing	This hinge button bearing replaces the 2310 pivot screw in order to maintain better control over the vertical friction of the tone arm.
116	3887	Jam Nut	This jam nut replaces the 1975 palnut inasmuch as the palnut had tendancy to strip the threads of the brass housing in which the tone arm lift pin rides.
117	3888	Lock Washer	This lockwasher replaces the 2937 flat washer inasmuch as a locking device was needed to secure the 2887 jam nut into position. No lockwasher was needed with the 1975 palnut as the palnut was self-locking.
118	4088	Brace for Base Plate	This brace was added to the baseplate in order to straighten the well in which the turntable rides to prevent turntable scraping and also to prevent bending of the baseplate while in transit.
119	2546	Record Support Hold-down Spring	This spring was added shortly after the beginning of the 950 production in order to facilitate the shut off after the last record had been played.
120	2110	"C" Washer for Record Support	This "C" Washer was omitted from the original exploded view of the Model 950 and it was felt necessary to show it on this drawing.
121	4172	Spring for Trip Lever Assembly	This spring replaces the 2516 spring washer in order to maintain a more uniform friction within the trip lever assembly.
122	1736	Motor Mtg. "C" Washer	This "C" Washer was adapted for motor mounting purposes inasmuch as the original snap fastener proved to be unsatisfactory.
123	3915	Slide Support	This support was added to the mechanism to stabalize the slide and cam assembly during the change cycle.
124	2932	4-40 Hex Hd. Screw	This screw is used to secure the #3915 slide support in position.
125	3901	Reject Spring	This spring replaces the 1721 reject spring and tends to give better return action on the reject rod assembly.
126	4013	Shut Off Lever Assembly	This replaces the 2591 shut off lever assembly which consisted of two separate items and will also serve to simplify and improve upon the last record shut off.
127	2579	Shut Off Lever Spring	This replaces the 2585 shut off lever spring inasmuch as the 2585 spring did not have the proper tension for the new shut off lever.



A PHOTOFACT "EXPLODED" VIEW

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REASONS FOR ADDITIONS AND CHANGES (CONT'D)
To The Record Changer Mechanism

REF. NO.	PART NO.	DESCRIPTION	REASON
128	3916	Tinnerman Nut	This Tinnerman nut replaces the 2932 self tapping screw on some models due to a change in the die cast subframe.
129	2585	Escape Lever Spring	This spring was necessary to help actuate item 130A which is an escape lever located on the main slide and cam assembly.
130	4014	Slide and Cam Assembly	This replaces the 2288 slide and cam assembly inasmuch as the earlier assembly did not carry the escape lever and spring for the shut off mechanism.
131	4016	Shut off Spring	This spring replaces the 2978 shut off spring inasmuch as the 2978 spring did not have the proper tension when used with the new shut off mechanism.

Most of the changes which have taken place on the Model 950 Tri-O-Matic record changer were so done to improve upon the product and from time to time we will incorporate more changes either to simplify or improve upon the mechanism.

PARTS LIST V-M 950

REF. NO.	PART NO.	DESCRIPTION	REPLACES
115	3602	Hinge Button Bearing	2310 Pivot Screw
116	3887	Jam Nut	1975 Palnut
117	3888	Lock Washer	2937 Flat Washer
118	4088	Brace for Base Plate	Addition to Mech.
119	2546	Record Support Holddown Spring	Addition to Mech.
120	2110	"C" Washer for Record Support	Addition to Mech.
121	4172	Spring for Trip Lever Assembly	2516 Spring Washer
122	1736	"C" Washer-Motor Mounting	Addition to Mech.
123	3915	Slide Support	Addition to Mech.
124	2932	Screw 4-40 Hex Hd.	Addition to Mech.
125	3901	Reject Spring	1721 Reject Spring
126	4013	Shut-Off Lever Assembly	2591 Shut Off Lever Assembly
127	2579	Shut Off Lever Spring	2585 Shut Off Lever Spring
128	3916	Tinnerman Nut	2932 Screw
129	2585	Escape Lever Spring	Addition to Mech.
130	4014	Slide and Cam Assembly	2288 Slide and Cam Assembly
130A	4005	Escape Lever (Part of item 130)	Addition to Mech.
131	4016	Shut Off Spring	2978 Shut Off Spring

IMPORTANT NOTE:

WHEN ORDERING REPLACEMENT PARTS PLEASE GIVE MODEL AND SERIAL NUMBERS OF THE RECORD CHANGER.

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